TMI

Decision Making in the Age of Information Overload
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Maybe this is interfering with my homework!"

Five years ago, when Instant Messaging was relatively new (and how last decade is that), I asked my students in a 444 Honors Seminar to do a simple observational experiment of their choosing to demonstrate the steps in the scientific process (hypothesis, observation, conclusion). Two students asked the same question: "How many IM messages do I get in 30 minutes?" Both made similar observations—about 20! My opening sentence above was the conclusion drawn by one of those students. This was my first direct encounter with the new, distracted environment of today’s college students.

IM was a laptop-based, pre-Wi-Fi technology. Users had to be sitting somewhere with wired access to the Internet; a dinosaur technology in comparison to the multiple gadgets now providing continuous access to the world. Both access and distractions have multiplied.

A backlash is brewing. A recent column by David Brooks focused on the value of books in the home for increasing student outcomes. In that essay he refers to *The Shallows* by Nicholas Carr, one of the more popular of a phalanx of books decrying the loss of focus and lack of time for deep analysis and complex thought in the instant-response world. As I write this (July 18), this week’s *New York Times Book Review* section has no less than three essays and reviews on the impact of new communication technologies on learning and world events.

All of which makes this year’s dialogue topic, "Decision Making in the Age of Information Overload," exceptionally timely and relevant.

Part of good scholarship is being aware of historical precedents for your question, and it may be comforting to know that the concerns around superficiality and shoddy scholarship as a result of technological advances are not new. In *Hamlet’s Blackberry* (as reviewed by Laurie Winer), William Powers traces similar concerns back to Socrates, who felt scrolls would erode thought by allowing people to look things up rather than "remember[ing] them from the inside, completely on their own." Powers also mentions a 15th-century Italian scholar who said of Gutenberg’s press that it would “disregard that which is best and instead merely write for the sake of entertainment.” For a U.S. precedent, we can look to Thoreau who said famously in *Walden*, "We are in great haste to construct a magnetic telegraph from Maine to Texas; but Maine and Texas, it may be, have nothing important to communicate."

So, questions on the value of new ways to transfer information and to communicate are ancient ones and are really about the values that drive the human experience, as well as how to turn information into knowledge and outcomes. The scale and complexity of the issue grows at a pace described by Moore’s law on the doubling rate of computing power. The analogy of “sipping from a fire hose" applies, and the force of the information flood coming from the hose grows exponentially.

I first encountered the “fire hose” analogy in the world of satellite remote sensing where data rates and storage are measured in terabytes (10^12 or 1,000,000,000,000 bytes) and more. Making sense of such huge amounts of information depends entirely on placing each piece in a larger context set by the value of the surrounding “pixels” and other data on location, landform, etc. Does this work by analogy in other fields? Is the context of information—the relationship of each “byte” to others—how we are to avoid drowning in the data stream? If so, does that change the way scholarship works, especially if the needed context comes from another discipline?

I love a good essay. The format requires brevity, organization, focus, tight thinking. Given the topic of this dialogue, essays may become the longest kind of writing in our future!

The essays presented here are excellent demonstrations of the genre. While picking diverse contexts, and built from a wide range of disciplines, many of them sound similar themes of immense value to students here and now: be open but critical, evaluate sources, draw on the abilities of others, work in groups, go deep, don’t settle for the quick or superficial.
Ann Donahue and Carolyn Gamtsos urge us to evaluate sources critically. Students in particular should avoid using only comfortable and unchallenging methods for accessing information and should draw on the expertise of those who understand the reviewed and critiqued databases.

Courtney Marshall puts this concept in a culturally charged context, urging us to recognize that unchallenged assumptions about the social implications of language are especially active in the “invisible” world of the Internet, and that differences in ethnicity, race, orientation, and socioeconomic background do not disappear just because individuals cannot be seen. Differences still do matter, and the need to understand those differences is only amplified in a better-connected but semi-anonymous world.

Vanessa Urch Druskat puts this concept into the group meeting context, stressing that information has value, but that solving complex problems involves teamwork, and effective teamwork requires some of the same skills used to judge information. She urges us to be open, to understand factors like relative status, social relationships, and others that might inhibit good ideas from entering a team’s conversation. She offers that trust is central to allowing good ideas to surface, entering into productive discussions, and avoiding “groupthink.”

It is the lack of deliberate thinking and the quick acceptance of unsubstantiated and even dangerous ideas that leads to Arthur Greenberg’s discussion of the random or sometimes well-planned planting of ideas that “go viral” on the Internet or in the blogosphere. Perceptions, rumor, downright lies can all be transmitted, accepted, and multiplied at light speed. He gives several examples where long-term, in-depth studies were required to counteract bad ideas that had achieved a semi-permanent life of their own in the virtual world.

Robert McGrath applies the same principles to understanding what determines health in the U.S. While focusing on the complex problem of organizing and understanding data related to treatments and outcomes, he also highlights the simple numbers that drive the inquiry: we will soon spend 20 percent of GDP on health care, more than any other nation, and still suffer poorer “health” and longevity than many. More interesting still is the claim that active health care accounts for only 10 percent of health outcomes in our population.

Gene Elizabeth Harkless also uses health care as her platform, this time advocating for the active use of available, but complex outcome information as a basis for consumer decisions. She cites significant variation between data-based recommendations for testing and usual practices to support the idea that health care consumers become aware of information sources and use them in their interactions with clinicians.

Stacy VanDeveer poses an even more daunting challenge in the context of consumers who want to make environmentally enlightened choices in the marketplace. Even if we did know the impact of every step in the production chain of a product, how would we summarize those to consumers, who very well might want to know? He discusses the role of government in setting policies that reflect the true costs of production and distribution.

Sarah Stitzlein and Nick Smith offer two very different perspectives on our future and the role of the university.

Smith questions the nature of the human experience and its uniqueness, or its contribution. At what point does human thought cease to add significant value to the onslaught of information, which can certainly be “processed” more quickly by machines? As robotics and artificial intelligence grow, will we be the “stupider” part of the equation?

Stitzlein offers a more human-centered view, and one that you can take with you into the classroom and your other experiences here on campus. She urges us to be proactive, not passive. Move from a consumer of information to a creator of knowledge. Ask insightful questions. Craft evidence-based answers.

So we end where we began (also a nice feature of an essay—round out the question). Values matter. Good discourse requires stepping back from the fire hose occasionally to understand the context and look deeply into important questions, with help from your colleagues. Use media, don’t be used by them.

Finally, what to do with these essays? I hope you will use them in your classes, and your discussions outside of class. Students, print them (share them with a friend, and then recycle them—be sustainable!). Take them outside, sit under a tree. Read them, absorb them, think about them. Talk about them with others. Be critical, open, willing to leave your own comfort zone, willing to accept, but not without challenge. Master the flow, sip from the fire hose. Your UNH education is about information, but even more, your education is about learning what to do with information.
Endnotes


4. Although the actual source of the concept is debated, Gordon Moore, cofounder of Intel, is the one whose name is associated with the statement that computing power should double every two years due to reduction in the size of components on, and increase in computational speed of, the integrated chips that drive computer functions (Wikipedia, “Moore’s Law”).
Term Papers, Google, and Library Anxiety: How can information literacy improve students’ research skills?

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Date line: Tuesday, May 25, 2010—the cover story for USA Today is entitled, “Twitter power, learning from ourselves, in real time.” The article speaks about the evolution of the global phenomenon Twitter, a 140-character limit text-based microblog, “from a social outlet to a marketing tool and more.” Cofounder Evan Williams has described Twitter as an “information network…[telling] people what they care about as it is happening in the world.”

Even the Library of Congress is onboard with plans to archive the world’s tweets in order to preserve the historical record for scholarly inquiry of “what both the first-person participants in history and its spectators were saying.”

In today’s information age, Twitter is just one of a plethora of outlets vying for attention, offering large quantities of digital data, and contributing to the condition that has become endemic in our society—information overload or TMI (too much information). Librarians David Bawden and Lyn Robinson have identified that “information overload occurs when information received becomes a hindrance rather than a help, even though the information is potentially useful.”

Today’s digital natives are Internet-savvy and are usually very adept at juggling not only the myriad of technological gadgets that have become essential to daily existence but also the influx of information received from these devices. They have sharply honed skills at “googling” fast facts and have discovered how to manage social connections through texts and tweets, but research indicates that when it comes to doing college research many students are overwhelmed by the abundance of resources available.

How does one cope when a basic Google search results in several million results? Too often students are confused and frustrated, seemingly paralyzed by the amount of information available. University Librarian David Baker calls this continually increasing trend a “data deluge,” and the consequences of this flood can be damaging. Procrastination and avoidance of research assignments create stressful environments that impede success. How do students navigate the information-rich but sometimes cumbersome task of academic research?

If Twitter offers “real-time” insight into the “meaningful and mundane” issues of the day, what can we learn about students’ own experiences with library research in a world where an incredibly broad range of information is available right at their fingertips? In their own words below are eight students’ tweets posted on May 25, 2010.

1. “I just came back from the library and doing research... stressed”
2. “Just went to the library to do research on my assignment, and all the reference books are gone.”
3. “7 hours straight in the library has me seeing things! Now to watch 24 while I create a bibliography for this research paper!”
4. “I checked out 6 books from the library for my research paper, I’m such a geek”
5. “I feel so scholarly; went into the depths of the library to find a research journal.”
6. “At the library... During my lunch time helping a friend on their research paper :/”
7. “Google Docs folder has now reached 100 documents. Information overload!”
8. “Information overload. There is just too much. How will I do it!”

These tweets describe many of the same concerns identified in a recent national study of college students on seven U.S. campuses in fall 2008. This study attempted to uncover how students find the information they need, what obstacles they encounter, and what strategies they employ to meet their information needs. The preliminary findings suggest that students are challenged by the amount of information available and express frustration that in an information-rich climate it feels that “the more you know, the less you know”; students struggle to sort out relevant material when too many results are offered; and students labor to find the needed...
information, whether it is a full-text article online or a book on the library shelf. Information literacy is the ability “to recognize when information is needed and...[to] have the ability to locate, evaluate, and use effectively the needed information.” The information-literate person has the skills necessary to articulate and define an information need, which for students may mean clearly focusing a topic; to find that information proficiently and accurately; to carefully assess the information for quality and relevance; and to turn that information into new knowledge by using it to complete a task. Information literacy is about more than completing a research assignment or succeeding in college, although the information seeking practices it promotes are essential for those purposes. Information literacy skills will help students make wise choices in all aspects of life, from writing a paper to buying a car to looking for a job. The information literate individual has been empowered to become a smart consumer of information, to take control of the bits and bytes that surround us every day, and to make informed sense of what can be an overwhelming information landscape. Because that landscape is constantly and rapidly changing, these competencies are essential for the future: information literacy skills are highly portable, applicable in any situation where a decision regarding the quality and accuracy of information is required.

Information literacy is a mindset, a holistic way of approaching the quest for information, analyzing the sources of that information, and understanding the ramifications of that information so as to create new knowledge. Acquiring such fluency is a process, one that will unfold throughout a students’ academic career and beyond, into the workplace, the home, and the public sphere. However, students can consciously begin to practice and hone the skills that are the basis of information fluency by asking several important questions whenever they begin the research process; in time, the questions will become second nature as students become accomplished at acquiring, assessing, and using information.

First, a researcher must clearly define the nature and scope of the information necessary for the task at hand. For a student, this may mean understanding and defining the assignment and focusing the topic to a clear and manageable research question or thesis. Brainstorming techniques, such as prewriting questions and concept maps, can help with this stage of the process. Questions may include: Who is my reader? What is my research topic? What do I already know about the topic? What more do I need to learn? What specific information do I need to learn more? Concept maps are a mechanism...
for graphically charting out the issues and questions that arise around a topic and for generating keywords that can be used in a future search. The Online Writing Lab (OWL) at Purdue, a good source for writing tips and strategies, provides students with a set of prewriting questions that can help define an information need: http://owl.english.purdue.edu/owl/resource/673/02/. This YouTube video describes using concept maps to explore a topic and to look for words and phrases connected to that topic: http://www.youtube.com/watch?v=av5PKePIkcE.

The next step is to locate information in an appropriate source. Wikipedia and other “free” web sources may tempt a researcher with the promise of quick and easy searching, but the quality of the information on such sites is questionable. The information-literate researcher will seek information from reputable sources, such as the subscription databases found on the UNH Libraries’ Web site: http://www.library.unh.edu/researchtools/databases/. Finally, the savvy researcher will carefully assess all sources located—even from high-quality online periodical indexes—for relevance to the research topic; timeliness of the information; authority and expertise of the writer; credibility or trustworthiness of the source; perspective or bias of the author and the source; and the intended audience (Middle school students? Experts in the field?) of the source. Students who take the time to follow these steps when conducting research will do more than ensure that they have appropriate sources for their papers and projects: they will begin the lifelong process of critical engagement with information.

The UNH Durham and UNH Manchester librarians have created online resources—called Library Guides—to assist students in developing and enhancing their skills in information fluency: the guides are available at http://libraryguides.unh.edu/index.php. The first step on the path to information literacy is remembering to ask for assistance with an information need, and librarians, as information professionals, are happy to help with any questions students may have.

**Endnotes**

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Integrating Information and Making Effective Decisions in Teams

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Abstract

In this information age, organizations have come to realize that they can no longer rely on employees to have all the knowledge necessary to make quick, well-informed, and competitive decisions. Consequently, most of today’s organizations structure work around teams, which enable workers to share, discuss, and integrate information, thereby increasing the speed with which informed decisions can be made while boosting employee learning. Research has long shown that, when there is no clear “right” or “wrong” answer, teams make significantly better and more innovative decisions than individuals do when working alone. Whether you are studying engineering, nursing, education, management, accounting, or any other field, you will find yourself working in teams. However, team decision making only works well when team members solicit information and ideas from every team member, listen to one another, and then build on or integrate ideas to make a decision. Although this may sound easy, it isn’t, as many of the behaviors that get in the way are either unconscious or outside one’s awareness. Thus, this essay discusses what can go wrong and what must go right for a team to use its members’ information effectively and make the best possible decision.

For the past two decades, businesses that hire college students have rated “teamwork skills” as one of the most important skills they look for when hiring new employees. Organizations now commonly structure work around teams for a number of reasons, most of which are related to the fact that the amount of information required to make competitive decisions is greater and the competition is tougher than ever before. The increase in information means that employees must now be more specialized in their knowledge, making it necessary for specialists to meet and talk (either face-to-face or virtually) in order to see the full-picture necessary for creating ideas, solving problems, and making decisions. Tougher competition means that the decisions and ideas coming out of these teams need to be more innovative, smarter, and faster than those of competitors. Consequently, employees need to know how to work well in teams.

Teamwork skills are also high on the list for employers because—believe it or not—they are rare. Effective teamwork involves soliciting information and ideas from every team member and then building on or integrating the shared information. Theoretically, this sounds simple, but many factors impede team members’ ability to listen, participate, and be heard. For example, most people do not have the self-awareness to realize when they are not listening or the open-mind and self-control essential to attending to ideas that are different from or opposed to their own. Yet, many work teams are designed so that no two people have the same background or specialty, meaning that competing ideas and priorities are standard; indeed, the purpose of using teams is to bring together diverse information and ideas. Moreover, information is rarely objective or presented in an impartial manner. Status differences influence how well a member is listened to and, since information is often the source of power in organizations, not everyone is willing to give away his or her power by sharing information (i.e., if everyone knows what I know, I am not needed). This is the reality of human behavior in work teams. It underscores why working well in teams requires that members attend to and manage predictable obstacles that can lead to ineffective information processing and poor decision making. The following section reviews a few of the most predictable obstacles.

Teamwork Requires Effective Information Processing

Obstacle #1: The common information problem.

For three decades, researchers have struggled to solve what has been labeled as the “common information problem.” Team members prefer to discuss and work with information that is common (i.e., shared or known to most team members) rather than information held by one or a few members. This unconscious preference leads team members to easily ignore or miss new or different information and favor information that most team members knew before the meeting started. Such
an approach restricts the information used to make decisions and defeats the key purpose of using team decision making. In addition, it reduces the effectiveness of decisions because integrating unique information into decisions is critical to making innovative and high-quality decisions. Research suggests that even when unique information is not correct or perfectly relevant it expands members’ thinking and opens up a more creative decision-making process.²

Researchers have revealed several reasons for the bias toward discussing common information.³ First, people prefer to present and receive information that is shared. Those who present information that is already known by others are perceived to be more competent, knowledgeable, and credible than those who present unique information. Another reason for the bias is that common information is usually discussed early in a meeting; according to the research findings, team members like to formulate their preferences and decisions early in team discussions. Finally, once team members formulate initial preferences, they rarely change their minds. This final point is a key reason why team members should hold off on evaluating information until the end of discussions.

**Obstacle #2: Fear of conflict.** People have different tolerance levels for disagreement and debate, and most people fear unbridled conflict. This fear often keeps team members from initiating healthy disagreements or debates, particularly when members are fond of one another. High levels of social cohesion in a team reduce members’ willingness to “rock the boat” and openly disagree. Yet research shows that disagreement, debate, and limited levels of conflict stimulate thinking, improve the quality of team decisions, and are necessary for innovation. Disagreements and debates force team members to be clear about their positions, collect additional information, and listen carefully to one another. Team members have been found to be more flexible in their thinking and more creative in their problem solutions when they anticipate low levels of cooperative disagreement and conflict.⁴ It is important to note that this occurs with low levels of conflict; when conflict becomes hostile or tense, the ability to process information and solve problems is reduced.

Research also suggests that conflict focused on the decision or the information being discussed is generally productive.⁵ Such “task conflict” focuses on the effective completion of the task. Conflict reduces decision quality when it is focused on members’ personal issues that are unrelated to the task. Meanwhile, personal conflict—or “relationship conflict”—focuses on personal or relationship issues. Relationship conflict increases team member anxiety and decreases individuals’ willingness to listen to other perspectives. The problem facing teams is that task conflict easily converts into relationship conflict. For example, when one member vehemently disagrees with the ideas of another, the disagreement can easily become personal (e.g., “You disagree with me now because you are always disagreeable.”)

**Obstacle #3: The influence of status and conformity.** Although theoretically feasible, it is practically impossible to compose a team whose members are perceived to be of equal status—especially in the workplace. Human beings seem to have a need to create status hierarchies even when formal titles do not exist. In work organizations, status is commonly granted based on one’s hierarchical level in the organization, seniority, specialty, level of education, status in society (e.g., as a result of physical appearance, gender, age, race, socioeconomic status), and popularity among team members, which ultimately causes problems because the information shared by higher status team members carries more influence than that shared by lower status members. This occurs partly because members listen more carefully to higher status members, leading high-status members to feel entitled to share more information and carry more influence. Yet higher status members and members who speak and are heard more often frequently do not have the most relevant information to share,⁶ so their excessive influence hinders teamwork and reduces the effectiveness of team decisions.

A problem closely related to the status issue is the pervasiveness of conformity in teams. For more than half a century, team specialists have recorded extensive conformity in teams—a phenomenon that became labeled “group-think” in the 1970s. Members usually conform to the ideas held by the majority of members in the team (who, as you may have surmised, are often most influenced by common information and high-status members). Yet research consistently shows that the most innovative ideas come when members disagree with the majority, pushing them to understand the value of nonobvious information or ideas. As agreeing with the majority is so common, researchers label efforts to push for understanding of less evident ideas as “minority dissent.” The majority typically does not embrace dissenters. Thus, minority dissent involves confronting the idea of conflict, fighting to get heard, and ostracism. It is important to note that minority dissent is rare in teams because most people prefer to go along with the majority. The strong desire to “fit in” and “just get along” perpetuates conformity.
The most famous study on conformity in groups was conducted by Solomon Asch in the 1950s. Asch found that, even when the majority in a group was obviously incorrect (the majority worked with Asch and gave grossly incorrect answers), 74 percent of group members conformed to the majority at least once. Most people do not consider themselves to be conformists; consequently, many were skeptical about the initial results. Thus, the study was replicated many times in many contexts with groups around the world, consistently demonstrating that approximately 74 percent conformed at least once. More recently, research has revealed that conformity seems to involve an unconscious process. Researchers long assumed that conformity was intentional. However, when the Asch study was conducted while group members were wearing fMRI machines (i.e., brain scans), it was found that the strong influence of the majority caused members’ brains to slowly change their interpretations to be consistent with those of the majority, despite the fact that the majority was objectively incorrect. In other words, conformity does not appear to be a conscious choice; rather, the majority opinion convinces us to rethink and perceive information differently than we did before hearing the majority opinion. If this can happen when the ideas of the majority are blatantly incorrect, imagine how easily people conform to the majority when the task is more ambiguous, which is true for most decisions that teams make.

**Improving Information Processing in Teams**

Based on the discussion thus far, good teamwork undoubtedly requires much more than knowing how to be friendly and get along in a small group of people. Effective teamwork requires developing a plan and a set of norms or ground rules to ensure that team members’ information, knowledge, and ideas—no matter how seemingly insignificant—are shared and discussed (even poor ideas often have a positive effect on discussions and final decisions). The best and most innovative team decisions are those that grow from integrating or building upon shared information. Working in teams is time consuming, challenging, and costly. Decisions that can be made by individuals should be. However, when teams process information well, they almost always make more effective and more innovative decisions than individuals do. Teamwork also increases team-member learning and can even be good fun.

A number of actions can help a team improve its information processing. First, the goal or problem the team is to solve must be very clear and agreed upon by all team members. Without a clear and well-understood goal or problem, information sharing easily becomes disjointed and inefficient. Furthermore, misunderstandings increase the opportunity for dysfunctional relationship conflict. Second, it is helpful when team members know something about one another, such as individual members’ specialty, strengths, interests, and backgrounds, as this enables members to know and respect the type of information held by different members and can be used to draw information out of quiet members. It also leads to greater understanding and trust among team members, which helps increase information sharing and debate. However, when social cohesion is high, team members may stifle disagreements; team norms or ground rules can help address the need for cooperative disagreement and debate.

Finally, a team leader or team facilitator who keeps an eye out for the obstacles discussed herein can benefit the team. This individual should be considered the team’s “information manager” and should ensure that all members share information and listen to one another. This person should also ensure that shared information is recorded so that all information is recognized and discussed, especially information shared by lower status members or ideas that are not initially favored by the majority. The information manager also needs to ensure that individuals feel safe disagreeing, debating, and engaging in task conflict in this team as such vigorous discussions help clarify and enhance ideas. To this end, the team should have a ground rule that forbids relationship conflict, which enables the information manager to more easily step in and say “Didn’t we agree to ban personal judgments and attacks?”

Most UNH graduates will at some point in their careers find themselves working in teams. What behaviors or ground rules have you found to be effective in teams on which you have already participated? What challenges have you faced? Can you imagine yourself as the “information manager” of a team? Although good teamwork is rarely easy, knowing what can go wrong and what must go right for a team to effectively process information and make good decisions can make teamwork far more enjoyable.
Endnotes


Advocates, Agendas, and Nay-Sayers: Science and Technology in the Public Arena

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Introduction

Science and technology play major roles in our lives. We directly and indirectly make decisions about what we think to be true, likely to be true, exaggerated, or false. This may involve decisions to spend extra to purchase "totally organic foods," choose to inoculate children against disease, or how to power one's house. We vote on policy by supporting candidates and government initiatives on incredibly complex issues, including climate change, federal regulation of food and drugs, nuclear power, and off-shore oil drilling. The present essay discusses the need to critically assess the avalanche of information we receive on a daily (even hourly) basis from a wide array of sources having a wide array of credibility.

Information overload has been recognized for many years and called by one author "Data Smog." Technology writer Nicholas Carr worries that we may be losing our abilities to focus, concentrate, and be serious in evaluating information as the Internet seems to be "...tinkering with my brain, remapping the neural circuitry, reprogramming the memory." In 1960, the ratio of "media supply" to "media demand" was assessed at roughly 98. The corresponding ratio was estimated by researchers at nearly 21,000 in 2005. These researchers worry: "The digital citizenry may be content with the information it retrieves, but is it any better informed?" In my view we should worry: a March 2009 Gallup Poll indicated a bare majority (53 %) of college graduates believe evolution theory to be correct.

"Nay-Sayers": Are We Now All Experts on Vaccines?

In the preblog era, information was received from those recognized as having some degree of authority as experts. Families regarded medical doctors as authorities on medical matters. Debates in print or on TV usually occurred between recognized experts.

The Internet has democratized news and opinion in ways desirable and undesirable. A sensationalistic claim can instantly attract a large following. If the claim is later debunked, there is little notice and residual confusion may reign for years. One result is what writer Michael Spector terms "Denialism"—the irrational rejection of rational science and technology. An example is the continuing fiction that vaccinations cause autism. In 1970, only 1 child in 2,500 was diagnosed with autism while the number today is closer to 1 in 150. In 1998, the respected English medical journal, Lancet, published a study by Dr. Andrew Wakefield that connected late-onset autism, as well as intestinal lesions, to the Measles-Mumps-Rubella (MMR) vaccine. The blogosphere went into full-active mode. In the U.S., the National Academy of Sciences (NAS), as authoritative an organization as exists, initiated a thorough study of the claimed causal relationship and, by 2004, concluded that none existed. Next, an alleged relationship between autism and the vaccine preservative thimerosal, which contains mercury, "went viral" on the Web. In spite of advice to the contrary by well-informed physicians, many thousands of U.S. and U.K. families elected to avoid vaccinations, thereby placing large populations at risk. Family physicians were no longer seen as allies and medical experts but, to the contrary, stooges for Big Pharma.

The causal relationship between the MMR ("triple") vaccine and autism is totally baseless. In England, Dr. Wakefield had been engaged by a lawyer looking for an opportunity to sue companies manufacturing the "triple" vaccine. A strategy was devised and the 1998 Lancet study was published by Wakefield with 12 coauthors. In 2004, 10 coauthors withdrew their names from the published paper and Lancet retracted its conclusions. Disclosure that Dr. Wakefield had taken out a patent on a "single" vaccine to prevent measles suggested another obvious conflict of interest. In February 2010, Lancet completely retracted the 1998 paper. In May 2010, Dr. Wakefield’s license to practice medicine was revoked. How many years will it take now to completely remove the fabrication from the public consciousness?
Emphasizing Doubt and Uncertainty for Politics and Profit

Rigorously speaking, it is correct that a scientific theory can never be absolutely proven true. Unfortunately, business, government, and political and religious organizations often exploit widespread lack of understanding of science to exaggerate such uncertainties. Despite overwhelming evidence of the causal relationship between cigarette smoking and cancer, for decades the tobacco industry emphasized uncertainties in these studies (e.g., animals vs. humans, realistic dose, limitations on human studies, environmental causes). A clever political ruse is to call for tens, even hundreds of millions of dollars to study an issue until the science is “proven beyond a reasonable doubt.” That day, if it ever arrives, is likely to be in the very distant future. Millions of dollars for research are certainly much cheaper than billions of dollars for policy and regulation.

Today, the overwhelming scientific consensus is that the Earth’s atmosphere and oceans have been warming due primarily to the combustion of fossil fuels and the greenhouse gas carbon dioxide produced. Virtually universally-accepted data establish: (a) the rapid increase in atmospheric carbon dioxide starting in the industrial revolution, (b) the mechanism of warming by greenhouse gases, and (c) the increase in temperatures during this period. Although Democrats and Republicans seek the favor and largesse of powerful industries, the relationship between the administration of George W. Bush and industry, especially the energy industry, led to unprecedented efforts to subvert good science. Former Republican Governor of New Jersey, Christine Todd Whitman, administrator of the U.S. Environmental Protection Agency (2001–2003), resigned in frustration over the efforts of the Bush administration to distort her agency’s scientific efforts. It also attempted to discredit and silence Dr. James Hansen, chief of the NASA Institute for Space Studies, who warned, starting in the 1980s, of global warming. These efforts backfired when Hansen was interviewed on the CBS program Sixty Minutes (March 19, 2006). Philip Cooney, chief of staff of the White House Council on Environmental Quality, a nonscientist and former lobbyist for the American Petroleum Institute, famously edited a report by federal scientists on climate change by inserting “significant and fundamental” before “uncertainties” and many other similar modifications.

The “Yellow Rain” Controversy

During the 1970s, tales emerged from Laos, Kampuchea (Cambodia), and Afghanistan concerning “Yellow Rain,” employed as a weapon causing sickness and death. In September 1981, Secretary of State Alexander M. Haig publicly accused the Soviet Union and its proxies of employing chemical and biological agents and offered physical evidence. The stakes were extremely high: alleged violations of the 1925 Geneva Protocols (outlawing use of chemical and bacteriological weapons) and the 1972 Biological Weapons Convention (banning possession of biological and toxin weapons). If the Soviets could violate these agreements, then why sign any new treaties with them? The alternative—modernize weapons, stock up, and be ready for total war.

In the January 9, 1984 issue of Chemical & Engineering News, the weekly magazine of the American Chemical Society, Lois R. Ember, later awarded a Pulitzer Prize for this work, published a long and highly detailed analysis of the yellow rain controversy. In great detail she described the chemical composition of spots said to be yellow rain, analyses of fungi toxins, fungi ecology, limitations of chemical analyses, and much more. The highly readable and accessible, if challenging, article exposed very serious flaws in the State Department arguments concerning this deeply serious issue.

What Are Some Solutions to Managing TMI in Science and Technology?

1. Perhaps the most important need is for students (and the general public) to become “Information Literate.” Of five recognized Information Literacy skills, the ability to critically and ethically apply information is fundamental in the Age of TMI.

2. It is vital that the public understands how science is accomplished and evaluated. Although scientists are conservative in terms of defending established theory, once a scientist can revise or even overturn a theory by applying data that have been thoroughly and impartially reviewed, that scientist will be honored by the community, not treated as a heretic. Honesty is critical. A highly successful scientist may have a research budget of a few million dollars per year. These funds will be lost quickly if dishonesty is discovered. Fresh dollars will dry up quickly if there is even a perception of dishonesty. In this hyper-competitive arena, there will always be far more excellent research proposals than funds to support them.

Modification and revision of theories does not discredit them. Atomic theory, introduced by John Dalton over 200 years ago, was never a target for religious controversy and the types of criticisms hurled at evolution theory. Yet, while Dalton’s fundamental theory...
remains the same, given its modifications over the past century, he might not recognize his own great concept today. Similarly, when Darwin published evolution theory in 1859, there was no knowledge of genes, DNA, proteins, or enzymes. Yet today, knowledge of homologies (similarity relationships) among proteins and DNA fully support evolution. Thus, the protein hemoglobin is more similar between humans and chimpanzees than between humans and horses. These were effectively predictions made by evolution theory that Darwin could never have imagined 150 years ago. The fact that there have been significant modifications—for example, rapid changes in species at variance with Darwin’s view that evolutionary change only occurred very slowly over time—is not a weakness in Darwin’s synthesis.

3. It has been argued that scientists should be less confident in presenting knowledge. To differentiate scientific knowledge from articles of faith, scientists might replace “We believe” with “Scientific evidence supports the conclusions that”; similarly, replace “theory of evolution” with “law of evolution” since the notion of theories as “unprovable” has been used for political purposes. Why not use the term “paradigm” where merited? It is the atom paradigm that underlies our total understanding of chemistry. The evolution paradigm is the scaffold without which modern biological science would collapse.

4. Scientists must be impartial in their research and avoid arrogance. However, scientists are human and it is inevitable that a few well-funded “frequent flyers” will display hubris. Hubris was evident in e-mails intercepted at the Climatic Research Unit (CRU) at the University of East Anglia (UEA) that led to “Climategate.” Climategate was gleefully exploited to question the integrity of global climate change research. A March 31, 2010 report, ordered by the U.K. government, and an April 12, 2010 report, by a nonpartisan international group of experts ordered by UEA, fully support the quality of the climatology research while advising increased openness in providing public access to data. Predictably, climate-change deniers claim the reports are whitewashes.

5. A complex science/technology debate needs appropriate clarification and simplification to educate its intended audiences. As a Ph.D. in organic chemistry, I might have done nearly as credible work as Ember in analyzing the “yellow rain” controversy had I devoted six months exclusively to this effort. Her service and skill was to make these complex arguments accessible to me. In turn, I successfully “distilled” key points and presented them to a class of high school and middle school teachers. These teachers were then capable of presenting key points to their students. This “four-level” approach furnishes a model for reasoned public discussion of complex scientific issues.

References
5. See Chapter 2 in Reference 4.
13. House of Commons Science and Technology Committee, The Disclosure of Climate Data from the Climatic Research Unit at the University of East Anglia, 31 March 2010.
Do I really need to have that test?

Understanding risk and making medical decisions in the age of TMI.

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Introduction

Even in the age of Too Much Information, the truth is that in health care we have less hard data for treatment effectiveness than most people believe. Often, predicting a serious problem with precision is beyond our science. So, when a clinician tests for a diagnosis or recommends a treatment, what may be lurking behind that decision? Is it evidence-based reasoning? Or, could it be market-based pressures, ingrained ritual, or simply clinical ignorance?

Are you, the consumer, entering the health care visit with fear or hope fueled by the barrage of media proclaiming health threats and new, powerful treatments? How do you decide what to do?

Using skills and strategies based in health literacy may help bring sanity to this confusing onslaught of information. The clinician and the consumer both need a healthy dose of skepticism, the ability to discriminate among information sources, and mastery of a few simple numerical concepts. Even for healthy young people, the use of these skills and strategies can help cut through the hype and provide evidence to consider when deciding to seek care, participate in screening tests, or consider using a medication.

But, is our health care system set up to support and encourage expanded health literacy? What may be the drawbacks of promoting a more activated, informed consumer? And, lastly, as we become better at discriminating overload information and hype from the essential and important particulars in health care information, will we achieve health outcomes that matter?

Is treatment always needed?

Think about why you go to the “doctor.” (Because I am a family nurse practitioner, I choose to use the more inclusive term “clinician” in place of “doctor” as clinician includes many different primary care providers including nurse practitioners, nurse-midwives, physician assistants, and physicians.) Perhaps you were first taken to the clinician for an acute care visit because an earache complicated an otherwise mild illness. Your parents believed any ear infection to be dangerous, requiring immediate treatment with antibiotics to avoid short-term severe illness and long-term hearing complications.

Today, we know that is not so. Ear infections in young healthy children over age two with mild to moderate symptoms are best managed with a watch-and-wait approach that delays any use of antibiotics for 48 to 72 hours. By this time most children will not need antibiotics. At 24 hours, 61% of children have decreased symptoms whether they receive a placebo or an antibiotic.

To understand this better, a concept called “number needed to treat” helps us figure out how much added benefit a drug or other treatment provides beyond what would improve if you just waited for time to pass.

For children with ear infections, because at least two-thirds (or maybe as high as 90%) improve without antibiotics, many children would have to be treated with antibiotics to help the few who may benefit. That the number needed to treat for this problem is more than 7 (and may be as high as 20), means you have to treat at least 7 children who would get better on their own to improve the outcome of just 1 child, who would need an antibiotic to improve.

So, the outcome for just about all of the children given early antibiotics was not improved by the giving of antibiotics, because they were going to get better without any treatment. And, it means that each child not benefiting from an antibiotic was exposed to the risk of an allergic reaction, and that parents and/or the health care system incurred a significant amount of cost involved in obtaining that antibiotic.

Our science does not yet help us identify which 1 of the 7 to 20 children will benefit from early antibiotic treatment and for this we may need better diagnostic discriminators. Perhaps this information is hidden in our genome (stay tuned for those developments). But for now, medicine has recognized the unintended consequences of over-treatment, including problems such as antibiotic resistance and increased cost of care.

Acute ear infection is just one condition, among many common ailments, including acute low back pain that, based on current evidence, indicate overly aggressive use of medical treatment. Is this also the case for disease screening?
New evidence, major changes in cancer screening

Even beyond our inability to say precisely what treatments are truly effective and who will benefit from these treatments, we have great imprecision in our diagnostic and screening processes. If you are female, you are well aware of how many “health screening” actions you are expected to participate in, including those for breast and cervical cancer. If you are male, you probably visit clinicians for care far less often. Data from as recently as 2006 showed that young men between the ages of 20–29 years of age had less than one quarter the rate of visits for preventive care compared with young women. Female visits for Pap smears account for half of this difference. For these reasons, the examples here will focus on cancer screening for young women.

For decades, young women have been taught that breast cancer is deadly and must be diagnosed early to save lives. Women of all ages were expected to conduct monthly breast self-exams. Boys, not to be excluded from monthly search-and-find missions, were taught testicular self-exam, which is another unsupported intervention. During the “annual physical exam (another clinical service that has been found lacking in its effectiveness)” young women from puberty onward were exhorted to continue breast self-exams and the skill was reinforced each visit. Finally, in 2009, the US Preventive Services Task Force (USPSTF), an independent panel of experts, systematically reviewed breast cancer screening research. Their analysis and recommendations exploded our old rituals of care.

Relying on high-quality, large clinical trials that found breast self-exams resulted in high rates of referral for suspicious masses with no evidence of lives saved, the USPSTF graded the evidence for breast self-exams as “D.” A “D” grade means that there is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits and that the practice should be discouraged. Now, in contrast to preceding decades of clinical and social marketing messages powerfully reinforcing the importance for breast self-exam (and, in more than a few cases, women feeling guilty for not practicing this “health-saving” practice), breast self-exam is now out of favor.

Clearly, medicine is learning more and more that “the extent to which beliefs are based on evidence are very much less than believers suppose.” Similarly for the clinical breast exam, the “C” grade assigned by the USPSTF means that the net benefit is small and that the service should not be routinely provided, especially in women under age 40.

Young women are also encouraged to be screened for cervical cancer. Wrongly, in my opinion. Too many clinicians continue to require cervical cancer screening as a mandatory prerequisite to prescribing contraception. It makes no sense to link pregnancy prevention to participation in a cancer prevention program. But over many decades, women have been held hostage to this ridiculous linkage—no Pap test, no contraceptives.

The Pap test takes cells from the transformation zone of the cervix, which is the junction where cervical dysplasias (abnormal cells) arise. Out of those abnormal cells, rarely, and more often if HPV types 16 and 18 are present, cervical cancer may develop. (Note: the HPV vaccine is safe and effective at protecting against these types.) Putting this into perspective, each year 2 to 3 million Pap tests are interpreted as abnormal. Out of those, less than one half of one percent (0.5%), or 100,000 to 150,000, are high-grade dysplasia and of those high-grade lesions, there is a less than a 15% rate of progression to invasive cervical cancer over about 5 to 15 years. Over 70% (at least 10,500 out of the 15,000) of those cases are related to HPV type 16 and 18.

With our current understanding of the natural progression and resolution of low-grade cell changes of the cervix, it is now recommended that young women not be tested for cervical cancer before the age of 21. After age 21, a less than annual testing schedule, often every three years, is recommended for most women. This less aggressive approach prevents unnecessary interventions for mild abnormalities that will revert back to normal on their own while preserving the important benefits of cancer screening. This new, less aggressive approach earned an “A” grade by the USPSTF.

But, in spite of the best evidence, when clinicians were surveyed recently, less than 25% followed the new recommendations, and most chose screening options that overused services.

One other USPSTF “A” grade screening recommendation is testing for chlamydia infection in sexually active women age 24 or younger. Chlamydia trachomatis infects three million new people each year in the U.S. and it is a major cause of infertility, pelvic inflammatory disease, and tubal (ectopic) pregnancy in women. Most infected women have no symptoms. Therefore, screening using a nucleic amplification test has the potential to uncover hidden infections. Treatment can then be given to those who test positive. This will minimize the spread of the infection and decrease the risk of complications, improving the overall health of this young adult population. However, even though chlamydia screening received an “A” rating and the test is very good at identifying those infected, the test is not perfect. How so?

The evidence is clear that nucleic amplification tests have test sensitivities of up to 97%. This means that
if 30 out of every 1,000 sexually active young women between the ages of 15 and 24 are expected to have chlamydia, the nucleic amplification test will correctly identify 29 of these women (30 x .97 = 29). One woman will be told she does not have chlamydia when she actually has the infection. That is called a false negative and neither false negatives nor false positives are medical errors but simply the nature of imperfect tests.

The specificities of the nucleic amplification tests are also high at about 99%. Of the 970 young women who are tested for chlamydia but are not expected to have the infection, the test will correctly identify 99% of those, or 960 women. But, 10 women may be told they have chlamydia when, in fact, they do not have the infection. Again, these false positives are because the test is not perfect, not because of medical error. And, very importantly, samples obtained by urine tests are as reliable as cervical swabs. Hence, screening for this sexually transmitted disease can be done easily, although not as perfectly as many would like to believe.

Conclusion

After working through the evidence that clarifies the reasoning behind the treatment and screening of a few conditions, I hope I’ve imparted a healthy skepticism about current practices. And, I’ve underscored what abilities are required to discriminate evidence from values and beliefs. I want to leave you with a few high-quality, evidence-based resources that promote health literacy.

Becoming an informed, activated health care consumer is now up to you. For future conversations, the following questions remain: What may be the drawbacks of promoting a more activated, informed consumer? And, lastly, as we become better at discriminating overload information and hype from the essential and important particulars in health care information, will we achieve health outcomes that matter?

Resources & Readings
http://www.ahrq.gov/consumer/
http://www.cochrane.org/
http://medicalconsumers.org/
http://www.informedhealthonline.org
http://www.healthnewsreview.org/

Endnotes
Is the Internet Colorblind?

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I was counting T-cells on the shores of cyberspace and feeling some despair... I stand at the threshold of cyberspace and wonder, is it possible that I am unwelcome here, too? Will I be allowed to construct a virtual reality that empowers me? Can invisible men see their own reflections? I'm carrying trauma into cyberspace—violent gestures, a fractured soul, short fuses, dreams of revenge... All this confusion is accompanying me into cyberspace; every indignity and humiliation, every anger and suspicion.

—Essex Hemphill, "On the Shores of Cyberspace" Black Nations/Queer Nations

On November 11, 1994, Pedro Zamora, a cast member of MTV’s The Real World: San Francisco, died of complications from HIV/AIDS at the age of 22, one day after the season’s final episode aired. As one of seven roommates picked to have their lives taped “to find out what happens when people stop being polite and start getting real,” Zamora showed firsthand what life was like as an openly gay Cuban-American AIDS activist, and he often said, “I’m a person living with AIDS, and I’ll be living with AIDS until I take my last breath” (quoted in Aaron, 1). Zamora is widely credited for challenging the invisibility of Latinos, queers, and people with AIDS in the media, and in “A Tribute to Pedro Zamora,” a special aired on MTV, Bill Clinton remarked, “Over the past few years, Pedro became a member of all of our families. Now no one in America can say they’ve never known someone who is living with AIDS.” Though most viewers of The Real World: San Francisco did not know Zamora personally, Clinton’s remarks suggest that the shared experience of watching his struggles and joys on television gave us an insight into the lives of all people living with AIDS and thus challenged us to continue Zamora’s work. As José Esteban Muñoz argues, “Zamora was more than simply represented; he used MTV as an opportunity to continue his life’s work of HIV/AIDS pedagogy, queer education, and human rights activism. Unlike his queer predecessors [on The Real World], he exploited MTV in politically efficacious ways; he used MTV more than it used him” (183). While we could certainly argue the extent to which the lives of people with AIDS have improved since 1994, I’d like to use Zamora’s strategic use of television media, Clinton’s insistence that television somehow made AIDS knowable to the American public, and poet Essex Hemphill’s wariness of cyberspace to start a discussion about the role of technologies in challenging racial, gendered, and sexual stereotypes. As we dialogue about what “too much information” means, let’s ask the following questions: Does having an abundance of information about race, gender, and sexuality change the decisions we make about their importance? How does having instant access to people from all over the world impact the ways we experience our own social location and our beliefs about others? How does our culture foster an online environment of misinformation? Finally, how might we use cyberspace to theorize these issues?

To be a No-body

The utopian vision of cyberspace as a site where we can be free of bodily limitations is what William Gibson calls a “consensual hallucination experienced daily by billions of legitimate operators, in every nation” (69). Cyberspace creates a feeling of being connected with, yet highly suspicious of, other users. Cyberspace requires that we believe strongly in the ability of (supposed) anonymity and disembodiment to foster more honest conversation. When we’re online, we don’t see color, gender, sexuality, or other identities. The Internet is the ultimate colorblind society. Why then, should Essex Hemphill be worried about not being accepted? Why does he worry that his invisibility in American culture will be extended into cybertulture? These questions speak to the problem of theorizing cyberspace as a raceless, genderless utopia.
Critical race and feminist theorists have argued that the desire for a colorblind society, one in which we don’t see color, is racialized. While the history of colorblindness is outside the scope of this paper, I’ll say here that a desire to fight racism and treat everyone equally can often take the form of saying that race doesn’t matter (at least, not the way it did back in the bad old days). We should all see one another as people, not as races. To this point, legal scholar Patricia Williams writes, “But much is overlooked in the move to undo that which clearly and unfortunately matters just by labeling it that which ‘makes no difference.’ The dismissiveness, however unintentional, leaves those in [that] position pulled between the clarity of their own experience and the often alienating terms in which they must seek social acceptance.”

There’s a lot of that in the world right now: someone has just announced in no uncertain terms that he or she hates you because you’re dark, let’s say, or Catholic or a woman or the wrong height, and the panicked authority figures try to patch things up by reassuring you that race or gender, or stature or your heartfelt religion doesn’t matter; means nothing in the calculation of your humanity; is the most insignificant little puddle of beans in the world (4).

A desire to escape race by taking refuge online, then, is a misguided endeavor. Having a space where you can represent yourself as not dark, female, or Catholic does not make these categories less real. In fact, having the desire to leave these behind shows the power that they have in our culture. We can’t not see them; we can’t see beyond them. In reality, we do not leave our bodies behind when we engage in discussions of race online, and we should question our desire to label our identity categories as problems.

Spaces and Faces
How then can we use critical race theory to interrogate our online representations? New research on cyberspace has begun to answer this question. S. Craig Watkins, a professor of media studies and a blogger, studies the movement of college students from MySpace to Facebook over a four-year period from 2005 to 2009 (97). His research found that people between the ages of 15 and 24 spend most of their online time on social networking sites. In a study of white college students’ uses of Facebook and MySpace, Watkins found that the same racialized language used to differentiate between safe and unsafe people and communities was used to describe Facebook and MySpace. His interviewees described MySpace as “uneducated, trashy, ghetto, crowded, and [filled with] predators,” while Facebook received terms like “selective, clean, educated, and trustworthy” (80, 83). Watkins found that students were very uncomfortable with the wide diversity of MySpace profiles; Watkins theorizes that the students associate MySpace with uneducated and unemployed people who have the luxury of continually tweaking their profiles while Facebook’s uniformity connotes upward mobility and professionalism. According to him, our increasingly digital age has not promoted a radically antiracist agenda. “Indeed, the young people [he] surveyed and spoke with are attracted to online communities that connect them to people who are like them in some notable way” (97). Despite the Internet’s ability to connect us with people from around the world, attitudes about people of other races and classes shape our experiences of cyberspace.

These online interactions suggest a fascinating dynamic for those of us in cultural studies: the distinction between the Internet as an egalitarian space in which users are liberated from the confines of their bodies and one which is uniquely qualified to assert and solidify racial identities and divisions. Most students today consider e-mailing, text messaging, chatting, and blogging a vital means of self-expression and a central part of their social lives. Like other social forces, technology plays a powerful part in our racial and gender formations; let us, like Zamora, use the Internet strategically, as a means for enhancing and strengthening community, rather than transcending identity. I hope that this paper raises conversations about how we decide to live out our social divisions in online environments.

Works Cited


When is a lot still not enough?
Health information, the public good and privacy rights

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The United States health care system is the largest in the world. With annual spending approaching 2.3 trillion dollars in 2009, it eclipses the entire gross domestic product of many other countries. Yet unlike many other industrialized nations, it is a fragmented system that relies primarily on private markets for its provision. This reliance has led to similarly fragmented information about the health of individuals that in turn limits in some cases even a cursory understanding of the health of the population as a whole. Many have argued that some form of collective health information about the population is imperative to the betterment of society, and have called for uniform data collection that links health, socio-economic indicators, indicators of health risks and the like so that future interventions might be better targeted most effectively. Yet others believe that such mandatory data collection is a violation of personal privacy and the basic rights of American citizens. The question remains: what level of information gathering is the appropriate one, and is health information collection possible that serves the public interest while still respecting the privacy of patients and citizens?

Health Information and Privacy: A Brief History

Since the early days of organized medicine, physicians and other providers have collected, stored, and utilized health and personal information to better care for patients. The recording of health histories, presenting symptoms, and other clinically related information has been a long-standing and integral part of the caregiver-patient relationship. Beginning in 1847, certain disease diagnoses have been mandated to be reported to the state and tracked as a public safety concern, although which diseases are tracked vary by state.1 The list of federally mandated reportable diseases includes AIDS, Lyme disease, meningococcal disease, tuberculosis, and others.2 Still other data are collected anonymously through large population surveys, of which there are many. And while broad reaching in their topics and unidentifiable to the individual, they are sample based and have seen a decline in response in recent years as people have switched to cell phone use and are more inundated with information requests.3 Thus, they present a less than accurate picture of health for some segments of the population.

Our health system is also a predominantly private and fragmented one. It serves many patients, providers, manufacturers, drug companies, and insurers, and personal health information is shared between each. And while much of this information was necessary to carry out the care of the individual (and its payment), many question how that information is accessed and used. Examples of instances for disclosure could include marketing drugs to patients and providers, or disclosure by therapists when potential violence to a third party could occur.4

In 1996 Congress passed the Health Insurance Portability and Accountability Act or HIPAA. The law addressed privacy by attempting to extend the provider-patient privacy context to a changing health system. HIPAA does not attempt to put parameters on who may share health information beyond that individuals be involved in the direct care of the patient. The law states that the amount of information shared with those not involved in the care of the patient must be only the minimally necessary amount to accomplish the need at hand. This is an obviously vague and subjective provision and does not extend to those directly involved in patient care. Much of what HIPAA attempts to do is differentiate between what is meant by the security of health information and health information privacy. The idea of security is largely an information technology issue, and it is concerned with patient and provider identifiers, firewalls, encryption, and the like.
It is important, but its implementation necessitates that some definition of privacy and the parameters of privacy first be defined. The concept of privacy within medical doctrine has primarily concerned itself with the idea that patients’ must authorize access to and use of their medical information and also be able to review, correct, and obtain that information. And while HIPAA is an important standard for privacy and information sharing, it is only the minimum federal standard. Many state laws extend beyond HIPAA for certain individuals and in certain states. For example, in New Hampshire, a person’s medical information (not the paper it is printed on or database it rests within) is considered their private personal property, not the provider’s, as is the case in many states. Many other states have special laws regarding privacy for individuals with HIV or with intellectual disability. But for the majority of individuals, the difficult task related to privacy is to define what is being granted control over; i.e., what constitutes personal health information? And what information is deemed “necessary” for treating the patient. To consider these questions it is important to first define what in fact the goal of the health system is, and what is “health.”

**Understanding our Health**

The idea of “health” and what promotes health has been an issue of long-standing research and debate. In 1990, Robert Evans and Greg Stoddart put forward a now widely cited model of health that suggests that health is built upon a collective foundation of individual values and beliefs, which is modified by our gained experiences and our evaluation of those experiences. Having evidence-based research from medicine and public health is therefore paramount to being able to define our health. The model posits that there are a number of determinants to health, including our socio-economic status, our genetic make-up, our environment, and our access to health care services. In the United States, most of the nearly 2.3 trillion dollars spent on health is funneled through the medical care system, yet research has shown that access to care accounts for less than 10 percent of the variation in our collective health status. In fact, growing evidence suggests that socioeconomic factors may have the most impact in efforts to improve health outcomes.

This evidence is increasingly important in the United States, which ranked 37th of world countries in health outcomes by the World Health Organization in 2000 and last among six wealthy nations on dimensions of access, equity, efficiency, and overall health in 2007. In addition, U.S. health costs continue to rise at an unsustainable rate. Some projections show that by 2019, health spending will rise to near 4 trillion dollars a year or over 20 percent of our national Gross Domestic Product. This would mean one in every five dollars earned by a U.S. citizen would go to health care on average. In addition, we are now realizing epidemics of chronic diseases such as obesity, diabetes, asthma, heart disease, kidney disease, lung disease, dementia disorders, and others that are crippling our country both physically, and in terms of future cost burden.

The evidence suggests societal changes could promote a decrease in these trends, yet that evidence is incomplete. While the argument can be made on a population level that how you live, where you live, how much you earn, your level of education, and the comfort, safety, and amenities of your neighborhood matter to your health, it is unknown which of these contributes to health, how, and to what degree. This is partially because they are all intrinsically linked, and partially because there is no one source of data that pulls together an identifiable individual, their socio-demographic and socioeconomic information, and links it with their health information and experience. The research questions are clear; however, the type of information we collect and how we collect it simply does not allow us to answer them.

**A Need for More Information?**

From a population health perspective, the need for better information is apparent. The need to slow health spending and improve quality has led many in government and the private sector to promote the use of electronic and linked health information as a potential first step in this solution. In 2004, the government formed the Office of the Controller for Health Information Technology, whose job it was to promote policies around data sharing, a concept known as interoperability, to this end. They list the following as rationale. Enhanced medical information interoperability will serve to:

* Complete, accurate, and searchable health information, available at the point of diagnosis and care, allowing for more informed decision making to enhance the quality and reliability of health care delivery.

* More efficient and convenient delivery of care, without having to wait for the exchange of records or paperwork and without requiring unnecessary or repetitive tests or procedures.
Earlier diagnosis and characterization of disease, with the potential to thereby improve outcomes and reduce costs.

Reductions in adverse events through an improved understanding of each patient’s particular medical history, potential for drug-drug interactions, or (eventually) enhanced understanding of a patient’s metabolism or even genetic profile and likelihood of a positive or potentially harmful response to a course of treatment.

Increased efficiencies related to administrative tasks, allowing for more interaction with and transfer of information to patients, caregivers, and clinical care coordinators, and monitoring of patient care. (http://healthit.hhs.gov/portal/server.pt)

In 2010, President Obama signed the Patient Protection and Affordable Care Act, or what has come to be known as health care reform. In it are many provisions that are contingent upon a broader proliferation of information technology and data sharing in the health sector. Some relate to paying for quality of care, some around what prices are actually charged and paid, and some are related to tracking disease and its correlates. All of them require the collection and sharing of personal health information between providers of care, those paying for care, researchers, and others in ways we currently do not. Yet many would say we currently collect too much information and are resistant to sharing that information from fear of discrimination due to health status or genetic disposition.

Personal Privacy and the Public Good

A perceived right to privacy is core to American values. In health care, it is rooted in the Hippocratic Oath and tradition which supports the privacy of the patient-provider relationship. But as discussed, the need to disclose personal information has been justified to protect third parties and for the public good in some cases. The idea of privacy has since evolved primarily around the principal of informed consent. Anyone who visits a provider’s office for the first time has no doubt signed an informed consent form, or more recently perhaps a privacy notice document, which typically stipulates that the patient has control over his or her health information and that the provider will not divulge that information except for certain purposes (dealing with health insurers for payment being one). Modern health care and its complexities now challenge the notion of a one provider-one patient record holder given that our health information is stored, recorded, and shared between so many entities. Infants are screened at birth and often before birth on a growing number of genetic conditions, many which get recorded with a state entity. Blood samples rest with genetic registries. Pharmacies hold prescription records, labs store and transmit test values to specialists who may fax them to primary care doctors, and the list goes on. These data are used first for care purposes, but also secondarily in determining the supply of services (vaccines, new technologies, growing trends), for payment, and for research. The question then, is to what did the patient give consent for? Does the consent for care at the time of care also carry forward to secondary uses? Erring on the side of caution, however, is not without implication. For example, is it feasible that researchers investigating genetic medical innovations re-contact all of the children who were sampled at birth for their consent, and does this impose undue cost to new learning? Further, if the type of information collected becomes broader to include socioeconomic and sociodemographic information as so many claim is necessary to answer our pressing health questions, then how does informed consent fit, and is patient privacy truly an achievable idea?

Concluding Statement

We are living in a world witnessing exponential growth in technology and information. Data is being collected in more places, across more people, and about more things than at any time in our history. Yet from a health perspective, we still know very little. Doctors know a little about the health of their patients. Insurers know a little about the health of their enrollees. And overall we know very little about the health of our population or the care being delivered. Yet in the U.S. we spend more on that care than any country in the world, get less for it, and risk crippling our ability to function economically by doing so. Future policy efforts need evidence-driven information to reverse these trends. So, in a world of too much information, is it possible that too much is still not enough? And are we willing to forgo some level of personal privacy for better health and to enhance the public good, or is there a way to accomplish both yet undetermined?
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As a parent of two small children who takes seriously Richard Louv’s concerns about “nature deficit disorder,” I continually wonder how I can raise my children in this environment so that they are skilled with the technology but not drowning in it. Practical issues regarding how much time my privileged children should spend in front of a screen, however, give way to broader concerns about the future of information processing. In this paper I will attempt to frame everyday issues regarding the role of information technology in our lives in terms of the “big picture” of where such incredibly powerful tools might lead us. Questions about our emerging digital world, I believe, speak to the very meaning of human life and the possibility of our extinction. Google cannot answer these questions, which makes them especially worrisome.

At root, my concerns stem from the popular sentiment that all knowledge is really just information. Biology, for instance, increasingly understands life as a matter of information processes that are not that different from the subject matter of computer science. The consequences of this paradigm may seem academic, but Leon Kass—former chair of President Bush’s Council of Bioethics—captures the immense powers of the information age:

All of the boundaries are up for grabs. All of the boundaries that have defined us as human beings, boundaries between a human being and an animal and between a human being and a super human being or a god. The boundaries of life, the boundaries of death.... We may be able to do new things, but it will no longer be clear who is the “we” doing them—whether enhancing athletes’ bodies through steroids, changing who you are with euphoriant s, moving the maximum life expectancy out so that one no longer lives with the vision of one’s finitude as a guide to how one chooses to spend one’s days, or blurring that ultimate line of what is a human being and what is an animal.

These questions are the questions of the 21st century and nothing is more important.

From this perspective, the primary problem of too much information is not a matter of “information overload” for a busy population. The information technologies of our generation will, in all likelihood, shape humanity to an even greater extent than Gutenberg press or electricity. As we come to have instantaneous access to all digitized information, we become different creatures. We think differently and we socialize differently, and the changes are upon us before we have time to evaluate them. As an example of the speed of these changes, imagine the equivalent of the iPhone in 2030. It may well be a few millimeters in size and have powers that would seem even more magical to our 2010 minds than the 3GS would have seemed to me in 1990 when I was a first-year college student. For one example of the possible information technologies of the near future, consider the ambitions of Google co-founder Sergey Brin: “Certainly if you had all the world’s information directly attached to your brain, or an artificial brain that was smarter than your brain, you’d be better off.” Your phone may soon be smarter than you.

More importantly, at some point it becomes difficult to distinguish you from your phone or your laptop. Surely we are smarter in some respects because we can recall limitless information via our machines, and I personally place considerable value in this. I could not be who I am without my laptop. But at some point it seems fair to ask: Is it the machines or the people that are becoming smarter? If my spell check automatically fixes mistakes, it seems questionable that I would receive credit for submitting an error-free paper. The machine did that bit of the work, just as a calculator does arithmetic for me. To use Bill McKibben’s example, driving a marathon course in a car is very different from running it and our sense of achievement differs accordingly. But what if Wikipedia does most of my research for me? Where should we draw the line be-
between my contribution and the machine’s? Can we still differentiate between the machines and the people? What criteria would we use to explain the boundaries between my efforts and the machine’s? How will these lines blur further in 20 years? Will it become impossible to distinguish between the human and the inhuman as humans become more dependent upon and integrated with information technology? Where is all of this taking us? Who is in the driver’s seat? Should we resist?

Now consider that these possibilities unfold very quickly during a period in which we seem to suffer from considerable confusion. It seems that every generation claims that their children are deteriorating—consider Socrates’ “corruption” of the youth of Athens—but is this something different? Is information technology, in the words of T.W. Adorno, making us “stupider and worse” in that we seem to have a wealth of facts but a poverty of values?  Although we have access to seemingly limitless information, this sort of data tells us very little about why it has value. Empirical studies of various kinds have difficulty keeping up with the rapidly changing technologies, but the data increasingly suggest that we are indeed losing the ability to concentrate and think critically.  Google floods us with information before we know how to swim, and we seem forever floating on the surface of knowledge without knowing where we are headed. To paraphrase Thoreau, information gives us an improved means to an unimproved end. We are so drowning in information that we rarely have our heads above water to ask questions regarding ends—what we might consider the ultimate meaning and value of our lives. Information alone cannot make good decisions about justice, morality, and purpose. For that we need good judgment, which requires a rather different set of skills than Googling.

The confluence of these historical circumstances should worry us: we must determine the future and shape of humanity in the context of information technology yet our powers of evaluating questions of ultimate value seem rather weak for the task and increasingly dependent of that very information technology.

Even if we reached compelling reasons to slow the development of information technology, we might already be in too deep. Given competitive global markets, tremendous economic incentives propel the technologies forward. Few of us are likely to stop using the devices, in large part because it would place us at a considerable competitive disadvantage. Imagine, for instance, if a lone student today attempted to complete her coursework without using a computer. Likewise, suppose that one community decides that it has “too much information” and somehow restricts access or slows the development of its information processors. Could it compete with those without such reservations and who seek to develop their information economy? If one culture thinks Google’s artificial intelligence devices go too far, for instance, how will it fare against those who embrace the technology in matters of industry or warfare? This leaves us to wonder if we must adopt the technology or be left behind by those who use smarter machines. Such concerns should lead us to question the extent of our freedom to use such devices.

In this regard, computer scientist Bill Joy finds information technology similar to—and more threatening than—nuclear weaponry:

The nuclear, biological, and chemical (NBC) technologies used in 20th-century weapons of mass destruction were and are largely military, developed in government laboratories. In sharp contrast, the 21st-century [information] technologies have clear commercial uses and are being developed almost exclusively by corporate enterprises. In this age of triumphant commercialism, technology—with science as its handmaiden—is delivering a series of almost magical inventions that are the most phenomenally lucrative ever seen. We are aggressively pursuing the promises of these new technologies within the now-unchallenged system of global capitalism and its manifold financial incentives and competitive pressures.

National and international bodies could aggressively prohibit and regulate nuclear technologies primarily because they existed within closely guarded military domains and such inventions had limited commercial application. Compare this to information technology. Each of us is already heavily invested in information technology and we carry its power in our pockets. We want more. Relinquishment—or even a momentary pause in the information arms race—seems unlikely. Barring global catastrophe that severely limits our energy supply, we are taking this train wherever it leads us.

So again, where is the information technology taking us? Robert Oppenheimer—often referred to as “The Father of the Atomic Bomb”—offered this defense of technology only months after the United
States obliterated Hiroshima and Nagasaki: “It is not possible to be a scientist unless you believe that the knowledge of the world, and the power which this gives, is a thing which is of intrinsic value to humanity, and that you are using it to help in the spread of knowledge and are willing to take the consequences.”

Applying this anthem to emerging information technology raises grave questions. Is knowledge always intrinsically valuable, or must we put it to use toward human admirable human ends? Might information become a threat to humanity or even contrary to human survival? If information threatens humanity, which side should we be on: humanity or knowledge? Surely humans are not the conclusion of evolution, but should we resist if “smarter” things surpass us? If it is our intelligence that makes humans valuable, should information processing power determine a thing’s rights and access to resources? By this standard, might a machine of the near future deserve energy more than I do? If processing power does not determine something’s value and rights, what does? Can we preserve a privileged place for humanity without invoking our religious traditions? Compared to the information processors of the future, is there any reason to believe that we won’t be “stupider and worse”?

References
From Claiming Information to Deliberating about It

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This paper urges students to move from consumerist and individualist models of using information to more deliberative and communal models. While its use of concepts from capitalistic markets is problematic, these descriptions are intended to get students thinking differently about how they claim and use information. This paper is meant to be provocative and to get students thinking about the way information is often used on campus and how universities provide a unique social space for developing and using knowledge differently.

It is my contention that information is increasingly viewed as something to be claimed, something one reaches out for and takes. Many students tend to regard information as a resource or a commodity that they quickly use to fulfill their needs. They see it readily available and believe they are entitled to use it as they desire. This consumer mentality leads to a demand for more options of information from which to choose. In much the same way that Americans walk into a grocery store expecting a huge shelf of various cereals to choose from, U.S. students expect information to be easy to locate and plentiful so that they can make choices to suit their needs. This is related to an “I’m the customer and the product should work for me” mentality. In other words, students employ the expectations of consumers accustomed to many options and service providers who meet their needs when claiming information. With this mindset, students too often latch on to information that fits with their preexisting opinions or knowledge, rather than using information gathering to expand or challenge their views, because this information fulfills their needs without requiring additional reflection on or interaction with the information obtained. In much the same way that students expect a wide array of options and yet go back to the grocery shelves for the same cereal or cereal brand that they already like, they turn to the same information sources to retrieve information already aligned with their beliefs and preferences because they expect that, once again, it will suit them. While they want a wide array of choices, they are prone to sticking to the same types again and again.

On many occasions, news media outlets offer the appearance of information choices about an issue or event in order to suit the expectations of readers. This phenomenon is related to a cycle of media supply and demand that can be both beneficial and harmful. Let’s look at a recent example: Tiger Woods crashed his car. When a singular event like this happens, some media will respond to the event. With increased interest in that event amongst the public, the demand for more information about that event grows and the supply is increased. In this example, the public started to ask questions about an event that would be relatively mundane in the lives of most people. In response to this demand, the media began to create a feedback loop of information. For example, someone noted on a blog that Tiger had been fighting with his wife. News media then reported “some sources are speculating that Tiger was having marital problems.” Hungry for more details, the media offered up story after story about Tiger and his love life. The increased supply of information does provide for multiple perspectives on an issue and viewers can often benefit by seeing the event through different lenses, here from the perspective of Tiger’s neighbors, former lovers, and ultimately Tiger himself. But, simply having multiple perspectives shared through a variety of information sources does not necessarily render the information shared good. Some perspectives, especially when reporters are pressured to obtain them to promptly feed viewer demands for more information, are not always valid or equally worthwhile. Belief in the free market would suggest that eventually the faulty information would fall to the wayside, but this often does not happen quickly enough or clearly enough when students turn to online sources that are not updated or removed from the Web when debunked.

Let me begin here to move away from this consumerist paradigm. Students often seek information online when making decisions. More often than not, they just take information, rather than adding to it or engaging with others who’ve produced it. This may lead to two shortcomings. First, students miss out on the valuable exercise of moving from consumer of information to
producer of knowledge. Students may stay at the level of unverified or superficially verified facts, rather than engaging in a process of reflection, experiment, and critique of those facts so that they can be held more rightfully as justified true beliefs. Second, this behavior jeopardizes democratic forms of decision making. Taking information without engaging in deliberation with those who have produced it or others who are considering it risks the human interaction necessary for arriving at deliberative democratic decisions, a foundation of healthy democracy. These decisions account for the impact of information on the well-being of individuals and how its use might affect social living.

The current proliferation of information, especially in online venues, offers a terrific opportunity for improved democratic decision making. But rather than simply claiming information online, students should engage with information as they reach decisions about it. This engagement begins at the personal level by pausing to ask critical questions of the information and its source before using it as one wishes. This might entail talking with the author or looking up information about the author to determine her political affiliations, underlying motives, and other factors that might influence the information she provides. The increasing amount of information now shared on blogs and similarly constructed Web sites also increases the responsibility on the reader to fact check, as the reader can no longer rely on a publisher or editor to have done so before the piece was published online. In a related change, I believe that comments sections on news media sites have often become more actively posted and read than letters to the editor. The problem is that these comments are not regulated for libel or other shortcomings, thereby making the public deliberation surrounding them more problematic and requiring a more discerning reader. Students, responding to recent admirable efforts to fight discrimination and celebrate the individual, are increasingly prone to believe that everyone’s opinion is equal. But when it comes to engaging with information in order to determine its worth, usefulness, or impact, this is certainly not the case. A KKK member may offer a less valid or morally bad comment on a Web site about the Tiger Woods situation, though he may also offer some unique insight given his (admittedly reprehensible) views on race. It’s up to the student to carefully assess the quality of the comment, rather than just to claim it or discard it as she sees fit.

Engagement with information must also occur at the social level. Students should learn to be a part of knowledge production and information refinement, especially as members of deliberative democracies. As part of living and engaging deliberative democracy, students develop civic virtues like honesty, toleration, and respect. These virtues are enacted by seeking out alternative perspectives, privileging the status of the common good, and achieving fair consensus (Pamental 1998). These capacities stand counter to or are capable of overcoming some of the pressures on information exchange to be more individualist and consumer driven. Deliberative communication, intricately connected to the work of Jürgen Habermas and the work of neopragmatists in the spirit of John Dewey, is at the heart of deliberative democracy. Within deliberative communication, each participant “takes a stand by listening, deliberating, seeking arguments, and evaluating, while at the same time there is a collective effort to find values and norms on which everyone can agree” (Englund 2006). To be active and informed participants, students need to learn how to evaluate different pieces of information. This involves critically reflecting on one’s own knowledge and learning to give good reasons to support it, while simultaneously being open to learning from peers. Students, then, need to learn to listen to, appreciate, and critique the arguments of their peers. Appreciating someone else’s perspective, though not simply outright endorsing it as one’s equal opinion, builds empathy and an awareness of social issues effecting people different from one’s self, thereby moving away from individualism and toward collective appreciation of diversity, conflict resolution, and a common (as opposed to purchased) good.

Throughout UNH coursework, a commitment to developing skills of dialogue and deliberation about information should be clear. Many of these skills entail learning to deeply engage in deliberation. In order to do so, students must master the ability to carefully listen to the ideas and arguments expressed by others, as well as the ability to craft evidence-based arguments on behalf of their own interests. They should learn how to ask insightful and respectful questions that clarify an interlocutor’s perspective or request more explanation. Students must learn to identify underlying assumptions and biases as they assess the validity and worth of information. I believe this approach will lead to a more just and accurate use of information.

References


Can We Shop Sustainably?

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When we consume things, we use them up. Whether the things we consume are grown, captured, mined or manufactured (or some combination of these) they come from somewhere; they use material resources and alter environments; and humans were involved in making them. Too often, the environmental and humanitarian conditions involved in these chains of relations are poorly regulated and harmful to ecosystems, human health, and human communities alike. As such, every purchase we make has moral, ethical, political, ecological, and human rights consequences. To ignore this fact is to act irresponsibly.

One response to these realities is to try to shop sustainably. While we may want to exercise our values in the marketplace and drive higher environmental standards or human rights protection through our purchases, we must avoid thinking that consumers are solely responsible for creating a more sustainable world. If we privatize responsibility for sustainability, we absolve governments, corporations, and small businesses and other organizations of responsibility. In short, consuming is not a substitute for citizenship and shopping sustainably is no substitute for political action and policymaking.

Everything we buy is the product of a set of human and environmental relations, often across great geographic and cultural distances. We consume things from across the globe and from communities (near and far) about which we know almost nothing. How many of us know a lot, for example, about how either a farm or a factory actually works?

The sets of social relations connecting production and consumption are called commodity chains. The commodity chains of the early twenty-first century are exceedingly complex webs of relations that result in the distancing or obscuring of cost information from consumers at all stages of the chain. And the impediments to improving these feedback breakdowns are significant. If, for example, we assume that each of us reading this essay wants to be an informed, environmentally and socially conscious consumer, what would we need to know and do? First, we might want to find out where everything we consume comes from (the geographic dimension of consumption). For a start, we would need to determine the origins of every ingredient in the food and beverages we consume; every component of the clothing, books, and electronics we purchase; and every electron of electricity and transportation fuel we use (to say nothing of the where the energy used to make and transport the things we buy comes from). Probably none of us could accomplish this task. But, if we managed to find where most of these components originated, we would also need to know about the environmental and social conditions in which every component was made and assembled if we were to consider buying the environmentally and socially superior product.

An example of the challenges presented to the environmental and socially concerned consumer can be found in a pair of blue jeans. A few years ago, the British newspaper, The Guardian, published a story about the writers’ attempts to trace a pair of jeans from their point of sale in a shop in the United Kingdom to the origins of the jeans and their components. They found that cotton for the jeans was grown in Pakistan and Benin; the copper and zinc used for the rivets and buttons
came from Namibia and Australia, respectively; and the pumice for the stonewashing came from a volcano in Turkey. Furthermore, in terms of where the jeans were made, this answer included the synthetic indigo made in Germany, the thread made in Northern Ireland and dyed in Spain, polyester tapes and wires made in France and Japan, and the denim made in Italy. The jeans were sewn in Tunisia by Ejallah Dousab, who made less than $1.00 an hour; and they were stonewashed there as well (not an environmentally benign process). What should a tag in these jeans say about where they were made?

How many geographic locations are involved in even a handful of the many hundreds of things each of us owns right now or the hundreds more we will purchase in the coming weeks or months? How many consumers know enough about dyes, pumice, copper mining, stonewashing, Tunisian garment factories, minimum wages, and labor unions to determine what the environmental and social costs of the jeans are? In addition, the jeans story outlined above did not look into the resources consumed by energy generation and transportation, marketing and retailing, and a host of other consumptive aspects associated with consumer items. Finally, how much more complex than a simple pair of jeans is the chain of relations behind a laptop, a cell phone, or an automobile likely to be?

Thus, if consumers are each individually responsible for the environmental and social information for every product they consume, ethical and sustainable consumption cannot be achieved. Privatizing responsibility will not make our economy or society sustainable. There are simply too many factors, too many products (and their components) and too much information to be gathered about all of the things we eat, drink, use, and buy. In short, more sustainable consumption requires collective political and social action. Laws, policies, and standards are required, on which we can rely to reduce the environmental and social damage induced by the things we buy and consume. In the United States, as in most parts of the developed world, most of us do not gather information about every faucet or drinking fountain from which we might drink. We rely on policies governing public and private institutions to provide clean drinking water. We will need similar institutions if we are to live and shop in a more environmentally and socially sustainable society.

Of course, there is no single magic bullet to govern global markets sustainably. Political action and policy making will likely be required from the local to the global level. The good news is that a host of options exist. Citizens, NGOs, and firms can push for more stringent and more effective national regulations and for improved international laws. They can seek to reduce subsidies for activities that damage ecosystems and human health or to tax such activities. And policies need not only be enacted at the national or global level. States, local governments, firms, and universities can enact their own policies and push others to require more sustainable treatment of humans and the environment. Why not tax pollution and resource extraction of all types to help assess an economic cost to the existing ecological and human costs? If diamond traders and retailers are required to certify that the diamonds they sell have not funded terrorists and violent militias, why shouldn’t we expect other products to demonstrate that their trade does not occur on the backs of violent oppression? Once exposed to public pressure and scandal, firms like Nike have worked hard to maintain some minimum standards in the factories in which their products are made. But shouldn’t all companies be required to do so? Many more policy options exist, and they can be designed and experimented with in the public, private, and civil society sectors—and at various levels of government and social organization.

If we are to live—and shop—in a more sustainable world, we must have government that works for people and the environment and that seeks to move society and our communities toward sustainability at home and abroad. When we shop sustainably, we can reward more responsible companies and help to reduce some of the impacts of our consumption. But we cannot change the world while we shop, if we fail to change government and whole industries. We cannot shop our way out, because individual consumers are not solely responsible. They share responsibilities with their fellow citizens and with firms and governments. We must be active citizens of our state and local governments, our countries, and our globe if we are to shop and govern ourselves more sustainably.

Endnotes
