

Sharing . . . the Journey

A Prequel to *The World Is Open: How Web Technology Is Revolutionizing Education*

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GIVING AND SHARING

Former U.S. president Bill Clinton's 2007 book, *Giving: How Each of Us Can Change the World*, provides a simple yet powerful message of hope, optimism, and change. Throughout the book, Clinton effectively captures a giving spirit through dozens of fascinating vignettes. For example, people like John Wood are quitting their jobs at Microsoft in order to build thousands of libraries as well as computer and language labs, while making educational scholarships available to children in such places as Nepal, Laos, India, Cambodia, and Vietnam through a program called Room to Read. To make this program work, there are thousands of other givers who donate books, software, money, and other resources for Room to Read libraries and educational programming.

In addition to Wood, there is Woods, or, I should say, legendary golfer Tiger Woods, who founded the Woods Center, where volunteers offer mentoring in math, science, and technology to youth of Southern California. Of course, Clinton also highlights AmeriCorps, an organization he was instrumental in creating back in 1993 during his presidency. As he notes, AmeriCorps teachers travel to places such as South Africa, inner-city Los Angeles, and hurricane-ravaged New Orleans to give their time, talents, and educational services.

Clinton also documents global organizations such as Vital Voices, which is dedicated to building future women leaders around the world. For instance, Vital Voices provides leadership and business training, conferences on women's rights, legal services, and various other educational supports to nurture the hopes, dreams, and entrepreneurial spirit of women in Afghanistan as well as in other parts of the world.

Reading this book is certain to turn any reader into a giver. Clinton's wide-ranging compilation of riveting stories draws the reader to visions of how giving something, however seemingly small or inconsequential at the time, can make a huge difference. People around the world are contributing to efforts to diminish world pollution, discover cures for prostate cancer and AIDS, bring attention to the need for global peace, and provide support to victims of natural disasters and emergencies, such as those devastated by the major tsunami that hit South and Southeast Asia on December 26, 2004, as well as those caught in Hurricane Katrina just eight months later. Included in this book are stories about those giving some aspect of their lives for these types of issues and causes.

Each of us has something to give—time before or after work, physical labor and sweat, innovative ideas and other types of mental effort, money and tangible materials, and unique talents and skills—that can make a positive impact on the inhabitants of this planet. In parallel to acts of giving there typically is some sense of sharing—the sharing of stories, visions, kindness, wealth, sense of duty, resources, and so on. Indeed, sharing is a part of giving as much as giving is a part of sharing. Sharing is actually defined as an act of contributing or giving something. And sharing is what this book prequel, and perhaps life, is all about.

If giving creates hope for someone, then “sharing” potentially multiplies this process to include everyone. In effect, giving, though vital to sustain and enrich human life on this planet, is often unidirectional (that is, going from a giver to a receiver), whereas the fruits of sharing more often extend in myriad directions. Sharing may, in fact, represent a synergistic expression or culmination of giving in which what is provided or shared is duplicated, reused, and extended to people you did not initially intend or imagine benefiting from the act. What is evident is that acts of sharing take place in a highly interactive dynamic; such complexities aside, there is significant overlap between acts of giving and sharing.

Instead of trying to bring to life all acts of sharing, in this prequel to my 2009 book, *The World Is Open: How Web Technology Is Revolutionizing Education*, I focus primarily on sharing in educational settings via learning technologies, while briefly recounting aspects of my own personal journey related to such sharing during the past couple of decades. In the twentieth century, educators were often referred to as givers—those who give back to society without asking for much in return. Such individuals give their time to educating learners at all hours and on any day of the week. They offer their talents in particular subject matter areas, and they invent imaginative ideas and activities so that others can be motivated to achieve at a high level. Of course, such giving is a model for each succeeding generation of educators.

In the twenty-first century, however, opportunities for educators to share may actually eclipse opportunities to give. In contrast to giving to a particular student, classroom, or school, sharing denotes an impact that is much more far-reaching, or, at least, potentially so. Now, with the emergence

of the Internet and, concurrently, online sharing, you can have an impact on anyone anywhere on this planet at any time of the day. In particular, sharing has increased in salience within teaching and learning environments due to unique possibilities afforded by online collaborative technologies.

Sharing was not always synonymous with teaching, however, especially when educational technology was involved. In fact, technology was a major reason for the teaching and learning silos that have pervaded for decades across educational sectors. Even today, too many people blindly accept the bowling alley curricula of the past, where everyone worked alone on their individual tasks instead of collaboratively or across disciplines and departments. With online technologies and the seemingly sudden emergence of the Web 2.0 (and perhaps soon the Web 3.0—and beyond), we can now truly widen our perspectives through rich global and interdisciplinary collaboration and sharing.

FIRST WAVE OF TECHNOLOGY: DRILLING LEARNING

As indicated, until recently, technology has been a key reason for the lack of sharing in education. What was on one person's computer was solely for his or her use and should not be transmitted to others, because that would only encourage cheating or lazy thinking. Key examples of this perspective included programmed instruction and computer-assisted instruction (CAI) in the 1960s and 1970s which were by-products of the behaviorist movement made popular by the famous Harvard psychologist B. F. Skinner and his followers. At the time, technology was primarily used to reinforce learning. With such perspectives came the shaping of people in small steps toward a skill using what many opponents labeled “drill and kill instruction.” Shaping trumped sharing. Individualism overrode collaboration. *Result: sharing was virtually nonexistent in that first wave of educational computing technology.*

SECOND WAVE OF TECHNOLOGY: ENHANCING LEARNING

As programmed instruction and its reinforcement style of learning “finally” faded away, many educators in the 1980s and early 1990s began to use technology to expand or broaden what learners could accomplish in basic skill areas such as math, science, reading, and writing as well as other subjects and in even less clearly defined learning pursuits. No longer were they limited to using technology to narrowly focus on discrete facts and dates and pounding them one nail at a time into the brains of awaiting learners. There was a huge and highly welcome funeral procession for programmed instruction and CAI.

I witnessed part of this mass burial firsthand when conducting my master's degree research in a number of schools in Wisconsin during the summer of 1987. I had students using dozens of convergent thinking software

packages intended to enhance logical thinking, problem solving, hypothesis testing, classification skills, deductive reasoning, and making inferences. At the same time, I tested a similar set of divergent software packages for fostering originality, brainstorming, spatial reasoning, recognizing patterns and relationships, and designing original works in poetry, art, drawing, animation, and music. This was a far cry from the canned drills of most technology deployed in schools at the time.

Instead of limiting students' educational opportunities to a set of predefined standards or objectives, this wave of software elevated or extended learning beyond what anyone could do alone. Such technology tools worked with and expanded upon human cognitive capabilities to enable highly valuable and novel learning outcomes. Although the second wave of educational computing technology was not especially designed for sharing and collaboration, it was a means to extend human mental functioning. *Result: technology was a cognitive tool to enhance human thinking and reasoning.*

THIRD WAVE OF TECHNOLOGY: EXTENDING LEARNING

By using the second generation of educational technology to “enhance” learning, instead of hammering it in, educators started focusing on computers as cognitive tools that would augment mental functioning, thereby enabling learners to accomplish tasks that were not previously possible. My dissertation project on critical and creative thinking computer prompts embedded in WordPerfect in 1988 and 1989 was a prime example of augmenting learning with technology tools. Such learning enhancements were also found in supplemental resources such as practice exams, current topic readings, outlining and concept mapping tools for writing papers, rudimentary simulations, and other course study aids packaged on floppy disks and later on CDs, which were often glued or taped to the inside cover of the mighty textbook.

This approach was quite common from the late 1980s to the mid-1990s. Unfortunately, sharing was not typically embedded in such efforts, though one could share the disk. In addition, most often the technology provided by the textbook publishers was something that the teacher used to demonstrate, teach, show, and explain, and was not for students to try out or use to test hypotheses, brainstorm ideas, or collaborate with others. A focus on manipulating and measuring individual learning remained entrenched across all phases of technology design, implementation, and evaluation.

When the Web emerged as a viable educational tool in the 1990s, educators began to experiment creatively with it. At that time, the focus changed from using technology to enhance learning to using technology to “extend” what you do. This was a third generation of educational computer technology.

For example, at Indiana University, from 1996 to 2000, we used third-generation tools such as Web conferencing to organize interinstitutional collaborations between preservice teachers in Indiana and Finland. This project soon expanded to include classes in the United Kingdom, Peru, Korea, South Carolina, and Texas. Students discussed case problems seen in schools and suggested solutions to each other based on their course readings. With such projects, class discussions could take place on the Web late at night, long after the course lecture was delivered and even after the instructors and their assistants had gone to bed. Ideas were not only shared internationally, they were saved online for the next class of students to read, reflect upon, and use.

Activities that extended learning environments also took place in K–12 and corporate education. In K–12 classrooms, for instance, projects and initiatives such as Keypals, the GLOBE (Global Learning and Observations to Benefit the Environment) Program, the Journey North, and Kids as Global Scientists pushed learning well beyond traditional walled classrooms so that children could share their papers or scientific findings with peers in other schools, geographic regions, or countries. They might even have a live videoconference between two or more schools to share their curriculum projects and ideas.

Such videoconferencing technology could also be employed for engaging and educationally beneficial cultural activities and outreach programming to youth in rural schools, as seen in the International Studies in Schools (ISIS) program at my own university. For those outside Indiana, the Global Nomads Group also employs videoconferencing to foster global awareness and appreciation of cultural differences and similarities by youth in the United States and around the world.

In corporate training, this third generation of tools enabled learners to work in teams with others in their organization located in different parts of the world using asynchronous discussion forums, Web conferencing, and online chats. Such global worker-training activities built corporate efficiencies and expanded productivity in ways never previously imagined.

As these examples illustrate, it was during the 1990s that online educational activities were taking off in seismic proportions beyond the four walls of the classroom. *Result: ideas related to using technology to share began to crystallize. However, sharing was primarily limited to sharing papers across locations, sharing opinions in discussion forums, and sharing ideas via e-mail.*

FOURTH WAVE OF TECHNOLOGY: TRANSFORMING AND SHARING LEARNING

Though perhaps impressive, all of these activities in the third wave of technology amounted to nothing more than light-touch sharing by today's

Web 2.0 standards, where user sharing, contributions, and participation are the norm. Just where such efforts will lead remains something of a mystery, as most educators today have simply walked through an initial passageway leading to a rich labyrinth of sharing opportunities. Many remain hesitant to wander further inside the possibilities of the Web 2.0; afraid to upset any colleagues, students, administrators, supervisors, or other stakeholders. Some lack adequate support and training. Others lack time or interest. There are many reasons to stand for months or even years at the doorway to transformative technology change in education and simply peer in.

As a result of these barriers, sharing, for the most part, continues to be incidental to the course or learning experience goals and objectives; not the prime motivator for teaching or training with technology. Many educators operating from this perspective fully admit that sharing educational resources, materials, and ideas has wonderful side effects (for example, gaining new colleagues, increased global awareness, automatic course updates, and so on). Their main focus, however, is on enhancing or extending the learning of those enrolled in their classes; their direct concerns and ultimate reach typically do not include students in other classes or institutions or students who are unable to enroll in their classes for whatever reason. This perspective may change in the coming decades as online and nontraditional learning and learners become the norm. Outside learners will be one's learners.

What should be clear by now is that using technology to enhance and extend teaching and training environments was relatively painless. The next phase of educational technology, which sprouted wings in the late 1990s and is still evolving, relates to using technology to transform the curriculum. Transforming education with technology has not been as widely adopted as some perceive, but an avalanche of change is under way. Now with fourth-generation educational computing technology, such as the Web 2.0, educational courses are being entirely rethought and revamped to take advantage of authentic learning and real-world audiences for collaboration and interaction.

For example, there are online corporate reports for business classes to analyze and discuss, Web-based surveys and polls for research courses to access and perhaps verify, digital movies produced by students and shared in YouTube for cultural anthropology courses, Google maps embedded in architecture or urban studies courses, freely available podcasts of Spanish radio for language courses, and live language lessons via Skype. Students can record, communicate, and debate real problems or cases that one or more of them has encountered, instead of debating canned ones from textbook publishers. And, equally remarkable, the answers to those problems might come from someone that they will never physically meet. *Result: sharing in this fourth phase of technology integration is much more flavorful and multimedia rich; undoubtedly, it will soon be widely accepted as standard educational practice.*

SHARING TAKES ROOT

Despite hundreds, if not thousands, of such transformational teaching examples, there are endless bumps in this road. For instance, during the late 1990s, Murray Goldberg, former computer science professor from the University of British Columbia, built a high-profile user community around his extremely popular course management system, WebCT. Though he did not anticipate it, this community sprang up from a fast-growing user base for his product, thanks to his extensive and insightful grassroots efforts. Allowing instructors to initially use his product for free did not hurt either.

During this growth phase, Goldberg started dreaming of what it would be like if instructors using WebCT shared content, course resources, ideas, and even teaching styles or approaches. As president and founder of WebCT, he hoped that instructors using WebCT (and similar course management systems) could browse through the shared online content and write to each other for permission to use the resources that they had found. And even though there were 150,000 courses in WebCT format at the time and fifty e-mails a day from an active and thoughtful user group, only two people were willing to put their courses up on display for others to view; a mere two courses out of some 150,000. This certainly was not the exciting sharing culture that he and other online learning pioneers had envisioned. What went wrong?

Well, there were two gigantic barriers to sharing online content: *ownership* and *copyright*. Some worried about who actually owned the materials and whether they would benefit if they shared such content. Others were nervous that corporate lawyers at publishing houses would see the course resources that they were using without proper copyright clearance and engage in some type of legal action. Still others noted concerns about the piracy of their materials.

As the red flags of copyright and knowledge ownership were raised, Goldberg and many others hit a wall on sharing. They grasped the new possibilities for online communities of instructors but lacked the process for this to actually happen. Instructors wanted to share, but they simply could not, due to many internal policies, rules, regulations, and administrative mandates as well as external fears, barriers, and concerns on the part of the publishing industry—not to mention fast-changing legal requirements from state and federal governments.

Part of the problem was the newness of online learning. Today, educators and the institutions and organizations they work for have a better, though still imperfect, understanding of what the prevailing laws allow in terms of copyright. These same institutions and organizations also have established more effective internal copyright policies and procedures. Another part of the problem was the well-known fact that the primary reward system for most instructors in higher education was research based; it rarely, if ever,

revolved around pedagogical inventions or the sharing of such inventions. And still another issue was the emphasis on individualism in most educational settings (such as individual teaching, individual learning, individual assessment, and so on), not collaboration. Overcoming such fears would take more than a few years of familiarity with online learning environments and sharing content within them.

As these barriers begin to crumble, numerous signposts of the coming tidal wave of change appear. One key historical marker occurred late in late 2006 when Time Magazine named “You” as the person of the year in recognition of the growing use of online technologies that empower people. As made evident in that issue, people can contribute to learning and comment on the learning of others, instead of passively receiving it. At the same time, the copyrighting of scarce knowledge in the centuries prior to the Web 2.0 gave way to the sharing of vast stores of human creativity and innovation after the Web 2.0.

Centuries from now, historians will note that in the early 2000s we entered an age of knowledge and information abundance. For every fully copyrighted document or e-book, there were now several others to pick from that were free to use and share with others. As an added sweetener to the e-book movement, often these materials could be expanded, remixed, and reused in totally novel ways. A nonprofit organization called Creative Commons rose up to help individuals share and build upon the works of others while abiding by the assigned copyright designation and rules. With Creative Commons, the tools were now available for the person creating an educational resource to provide freedoms to others who might want to share, remix, or commercially use it. As this happened, the term “ShareAlike” became increasingly used instead of “copyright.”

Contributing or giving to others is what both the Web 2.0 and Bill Clinton’s *Giving* book are all about. The Web 2.0 is about sharing. We share podcasts of what we have found online as well as podcasts we have produced. We share ideas in our own wiki or contribute to existing wiki pages found in Wikipedia or WikiQuotes. We share our courses and educational resources with others.

We also subscribe to what others want to share with us. We subscribe to particular online news shows, postings from insightful bloggers, channels from YouTube video creators, and a plethora of other online content. What all these events mean is that you, the people, control your educational experience, instead of someone else controlling it for you, as was the case in the first few generations of educational technology, especially the initial one.

To recap briefly, generations of educational computing technology have marked the evolution of sharing among educators; we have journeyed from using technology to reinforce, enhance, or extend learning to current visions and initiatives related to how to share that learning. As this sharing occurs, learning environments are transformed.

Thanks to visionary people like Murray Goldberg and the emergence of Web 2.0 technologies, there is now a resounding buzz in education about sharing. During my travels the past few years to China, Spain, Malaysia, Taiwan, Thailand, Korea, Ireland, the United Kingdom, Iceland, Singapore, Saudi Arabia, and the United Arab Emirates, people have been talking about sharing and the possibilities that it holds for education. It is starting to make sense, especially when experiencing a budgetary shortfall or economic crisis.

This was not the case just five or ten years ago. For instance, when I gave more than a dozen talks on e-learning in four different cities in Australia in August, 2000 and mentioned sharing, a common refrain I heard was that “sharing may work over there in the United States, but it will not work here.” This mantra was repeated when venturing over to Finland nearly a year later, and the year after that to New Zealand, Korea, and, yet again, Australia. Ironically, in the United States, I heard the same comments, only in reverse—it may be viable in those other countries you have been visiting, but not here, not now, not anytime.

Like Murray Goldberg, my optimism on how online sharing and collaboration could change education around the globe had taken a serious blow in the early part of this decade. The sharing bubble was bursting. It really did not matter where I was; each place I stopped provided the same gloomy news, the same questions, and, generally, the same resistance and reluctance to share. I could have been standing in the middle of an international airport filled with educational professionals from hundreds of countries all headed in different directions and each of them would have stopped and stated the exact same thing: “We do not share in my country, period.”

Not only did most educators work alone and apart from others, but they also did not want their educational materials to be exposed to or exploited by a world community that might critique or mismanage them. These trepidations were not minute or restrained, but enormous, pervasive, and intense.

THE GLOBAL EXPANSION OF SHARING

Fortunately, the sharing pioneers kept chipping away at such fears. With each passing year, education and training professionals in K–12 schools, colleges and universities, and corporate, nonprofit, military, and government training settings have all become more comfortable with sharing educational ideas, contents, and best practices. Time, experience in teaching with online resources, modeling and examples of others, and general Web familiarity have broadened the views of those once hesitant or reluctant. Sharing has become a prominent part of the educational lexicon. It is part of what you do when you teach, design instructional materials, or evaluate instructional innovations. You share resources and materials in online portals and content

repositories, you place your best practices up on display in the Web for others to learn from, and you share your results. Learners and potential learners from every corner of this planet benefit from the sharing.

Sharing now permeates society. Our casual sharing can have an impact on a child or adult in rural parts of Cambodia, Chile, Chad, or Canada. Let's briefly look at Canada, as an example.

In northern portions of Canadian provinces there typically are no roads, except during cold winter seasons when ice bridges can be formed. Given these physical constraints, education is often shared electronically. In parts of Northern Ontario, thousands of First Nation individuals lack paved roads, plumbing, and other amenities that many of us take for granted. Amazingly, however, they all have broadband access to educational opportunities through programs such as Contact North and the Good Learning Anywhere Project. And, as noted below, with this access at their fingertips, these learners in Northern Ontario, as well as learners in any other corner of the globe, can engage with and share course materials from MIT and numerous other universities for free. Why? Because these resources have been shared!

Although examples of educational sharing might not be in the news as frequently as the examples of giving that Clinton documents, they are no less common. Many universities and educational organizations are sharing online course materials and information resources, including MIT's OpenCourseWare (OCW) initiative—a plan to place every single MIT course on the Internet for free. Ironically, the initial idea for OCW was generated by MIT engineering professor, Dick Yue, while working out on an exercise machine. At the time, Yue was also part of a planning committee at MIT struggling over what to do with their online content and course resources; other universities were attempting to sell such content but MIT officials felt that was not a viable long-term model.

When Charles Vest, then president of MIT, announced this bold OCW initiative on April 4, 2001, many wondered about MIT's actual intentions as well as the ramifications for institutions of higher learning and beyond. Back on September 13, 2003, I discovered part of the answer to that question. I was listening to Professor Atta-ur-Rahman, the chairman of the Higher Education Commission of Pakistan and adviser to the country's prime minister on science and technology speak at Abu Dhabi Men's College during the e-Merging e-Learning Conference. Professor Atta-ur-Rahman noted that the OCW project from MIT was changing the outlook of youth in Pakistan. As he pointed out, such young people could now learn engineering, science, and mathematical content from some of the foremost minds in the world.

I remember sitting near the back row of this particular symposium session of the conference in a futile attempt to shut my eyes for just a few minutes because I was experiencing significant jet lag; however, that proved

to be quite impossible. The reason I could not nap for even a few seconds was that Professor Atta-ur-Rahman's talk was far too insightful and mesmerizing.

Unlike many presentations intended to push traditional thinking, his offered fresh and highly captivating statistics about the technology infrastructure and unique educational opportunities within his country to back up his observations and predictions. As he stated, those with Web access in Pakistan or anywhere else, for that matter, now had a passport to MIT content, including videos, audio files, PowerPoint slides, tests, and lecture notes. Just a couple years after Vest's announcement, there already were hundreds of courses online and thousands of hours of free content. What innovations for the greater good of humanity might be spurred in Pakistan and other parts of the world from such free access and sharing?

Given its more than one million visitors each month, the MIT OCW project is certainly making a monumental impact. Testimonials found on the OCW homepage are from individuals in dozens of countries including Croatia, Argentina, Nigeria, Morocco, Indonesia, the United States, and China. In fact, Robert, an educator in the UAE, noted, "It gives one the chance to look at other people's materials and compare what they are doing with one's own work. I have used some of the HRM case study materials and acknowledged MIT as the source. **This is an excellent resource and it gives teachers in 'remote' areas a window on the world.** This is real open learning in practice."

So momentous is this initiative that OCW courses from MIT have been translated into Spanish, Portuguese, Thai, French, German, Vietnamese, and Ukrainian. Thanks to such efforts, a large percentage of the world population can now learn from one person's initial idea to share. Other esteemed universities such as Johns Hopkins, Tufts, Notre Dame, Utah State, Carnegie Mellon, Korea University, the Open University in the United Kingdom, and a consortium of universities in Japan, including the University of Tokyo, have followed the lead of MIT in placing some of their course content online for free.

As such courses are shared, the world naturally nudges forward as a better and more enlightened place to put up your tent, open up your laptop, and live and learn. Though some are quick to note that typically there is no instructor grading student work within OCW courses, extensive learning is possible without instructors. Self-paced, exploratory, and personally directed learning is certainly legitimate and vital learning; and often much more exciting, pleasurable, and beneficial than teacher-directed learning. Keep in mind, however, that at this time, exploring such resources does not lead to any course credit or a degree. The recent emergence of online entities such as Peer 2 Peer University and the University of the People, which exclusively use such open education content, may change that.

Not only are course materials being shared, but so are podcasts or online audio files of lectures, conference keynotes, student presentations, and

other valuable educational resources. People are sharing ideas in their online blog posts. In effect, anyone living in the twenty-first century with Internet access can be a journalist. Furthermore, current discoveries and new theories no longer have to wait years in the professional publishing pipelines to be read, discussed, commented on, and revised. Life at Internet speed is highly accelerated, personal, engrossing, and exhilarating!

MY SHARING JOURNEY

The sharing of thoughts, initial research, collaborative ideas, and announcements within a blog or personal homepage helps both the sharer and the receiver. For instance, the results from the simple sharing of a blog post may evolve into a magazine or journal article, or even a book. And with free and open access journals, open source books, and even wikibooks, sharing is amplified from a simple blog post or a rough idea scribbled on a napkin in a restaurant to a series of ideas with collaborative partners around the world. In fact, many scholars are putting up full books on the Web for anyone to download the entire text or pieces of it as needed.

This is a vastly different world from the one I left behind over two decades ago in my former occupation of accounting. Accountants are watchdogs of an organization and the hoarders of knowledge; definitely not the knowledge sharers. Though it is difficult for me to fully express my emotions about this cultural transformation, I am delighted to live in an age that offers so many unique opportunities to share, extremely passionate and thorough when I do share, and thrilled each time that I hear from people who have benefitted from it. For example, on my Web site (<http://worldisopen.com/>), I am offering a free, downloadable e-book extension of my new book, *The World Is Open* (TWIO), as well as book excerpts and many other supplemental resources.

Such online sharing and collaboration is becoming so common that many college students today are working collaboratively to write their own textbooks using Web resource tools and systems, instead of buying them from the previously all-powerful publishing houses. Anyone can share an idea with anyone else at any time it comes up. Sharing is the new norm in education.

Not only have I seen such sharing in action, I have personally attempted to develop a series of sharing tools and resources. My initial footsteps into this area coincided with the dotcom bubble. During late 1998 and on into 1999, about a dozen doctoral students and I developed many sharing tools and associated resources for an undergraduate textbook in educational psychology published by Houghton Mifflin. The goal was for students and instructors who used the book to share instructional activities, events, and ideas online. They could also find advice, examples, and templates for their teaching. We called the resulting textbook sharing site and portal INSITE.

When done with INSITE, we expanded on these ideas with a free global resource for college instructors and corporate trainers called InstructorShare that was developed through CourseShare, a company we formed to help share educational resources with the world for free. The goal of InstructorShare was to facilitate the sharing of learning resources and materials with the world education community. With InstructorShare, instructors in higher education and trainers in corporate settings could share media elements, book reviews, pedagogical innovations, and conference information within more than two hundred communities of distinct fields or disciplines. An important feature was that instructors also could asynchronously or synchronously discuss their use.

Although InstructorShare was quickly used by thousands of people, copyright issues and concerns made us take it offline after a few years. Nevertheless, it remains a model for online sharing. Nearly a decade later, dozens of other online repositories (databases of content or learning objects) and referatories (databases of links) exist, including popular sites such as MERLOT (USA), Connexions (USA), CAREO (Canada), and Jorum (UK). Such instructor sharing communities symbolize the educational opportunities and hope that Bill Clinton referred to in his book on giving.

And though we decided to terminate the InstructorShare project, we did not give up on sharing. In fact, during the greater part of the next five years, my team also built a series of sharing portals including BookstoreShare, UniversityShare, LibraryShare, TrainingShare, and PublicationShare; only the latter two remain operational. LibraryShare, for instance, indexed digital libraries and online library resources as well as hundreds of public and university libraries in North America. Similarly, BookstoreShare was designed to lead users to the increasingly vital world of free or open access digital books. UniversityShare, in contrast, offered a virtual map to the homepages of colleges and universities around the planet. The development of these various “share” sites was intended as a pathway to human knowledge. We viewed this as our chance to share.

The only commercial product we developed, SurveyShare, became the most widely used result of our efforts, with tens of thousands of people each year developing online surveys with it and hundreds of thousands taking them for free. In addition to an extensive user base in North America, the United Kingdom, and Australia, many come from places like India, South Africa, Indonesia, Pakistan, Zambia, Syria, the Philippines, Iran, and the Maldives. The vast majority of these people use it for free with unlimited monthly usage accounts. Storage of data online is so cheap today that free software and online resource use are not only possible, but expected. It is also important to note that users of SurveyShare collaboratively build and share their surveys and survey results with their colleagues and friends.

Human sharing epitomizes this fourth wave of technology. Each tool, system, resource, or course built online must have sharing opportunities or

consequences for it to be highly valued and used. Fortunately, the world is becoming filled with such virtual sharing devices and options.

OTHER SHARING QUESTS AND QUESTORS

As pioneers in this online sharing journey, we were intent on finding ways to share the knowledge of the world by assembling a compendium of links to all the online libraries, bookstores, and universities we could locate. These were lofty goals, but many organizations and institutions are now building online libraries and content aggregation sites that do just that and much more. For example, personnel from Google, in collaboration with some of the foremost public libraries, colleges, and universities, are digitizing millions of books with the goal of being the primary source on the planet for the world's knowledge. At times, Microsoft, Amazon, and Yahoo! have also been involved in this competition to place text knowledge up on the Web for anyone to use. Somewhat surprisingly, Microsoft has, at least temporarily, thrown in the towel on the book digitization race. Nonetheless, Microsoft, Amazon, and Yahoo! are part of a coalition that opposes a recent agreement that Google has with the Authors Guild and the Association of American Publishers related to Google's own book scanning project. In the midst of this controversy, millions of accessible e-books from Google, or at least pieces of them, are now shared with a fast-growing online world community.

The coalition mentioned previously is led by the Internet Archive, which is building a free digital library of Internet content. With its own ambitious book-scanning project, the Internet Archive is in head-to-head competition with Google. Incentive comes from the fact that officials at the Internet Archive do not want Google to be the only knowledge-providing game in town. And they are faring quite well in this contest. As of September 2, 2009, there were 1.6 million open access texts at the Internet Archive. These high-profile races to store the world's knowledge notwithstanding, just think of the innovative ways in which educators in developing countries could use the millions of free and open access books now available online.

There is a word for all that is taking place today in the teaching and learning world. Phenomenal! Very little of this was possible just a decade ago. It was unfathomable when I was in primary and secondary school back in the twentieth century. But it is here. As with the John Wood story related in Bill Clinton's book, the Internet Archive and Google, among others, are giving the world a storehouse of knowledge in the form of digital books. And so are hundreds of much smaller book-scanning and free e-book participants from foundations to small colleges to scholars seated in remote corners of university campuses. This open vault of the world's knowledge is now available for anyone with an Internet connection.

The global pursuit toward digitization of knowledge objects is not just about books. The Internet Archive is attempting to index the entire Web. In

the “Wayback Machine,” for example, one can look up Web pages by year, month, and date. The Internet Archive not only looks backward but also to present and future states of the Web. By early September 2009, the Internet Archive had indexed some 150 billion Web pages as well as nearly 200,000 online moving images, more than 65,000 live music concerts, about 400,000 audio files, around 60,000 maps from the United States Geological Survey, 33,000 free software tools, and a vast array of open educational resources. This is one ambitious project!

Reread those numbers and then pause for a moment and think about how much learning can now take place not just at this moment in time or particular year, but for decades or even centuries to come. Think of all the human lives that such educational resources might touch and change for the better.

As these colossal scanning and indexing projects unfold, sharing is no longer debated or resisted; instead it is a key part of what it means to be in education, no matter what setting you are in. What these numbers tell us is that we are a sharing species. I believe that such acts of giving and sharing may ultimately define who we really are as human beings. At the same time, it is efforts like these that stand up to combat the ever-present strands of pessimism surrounding education today—efforts that may even play a role in the survival of the human species. As evidenced by the resounding sense of hope and optimism that millions of people in the United States and around the world feel as a result of the Obama presidency, and in spite of the recent recession and associated funding shortfalls in education and training, a robust and heartwarming spirit of sharing and working together can reposition education from the low rung of the societal ladder to the top tier. Yes, we can . . . transform education and elevate educational opportunities through sharing. And many people are now volunteering to take part in this change process.

With such momentum, the conversations surrounding sharing have vastly changed. When I travel to different countries and cities today, the reactions are much different from what they were in 1999 or 2000, or even just one or two years ago. I witness new possibilities for sharing with each journey I make. When in Taipei in July 2005, I met with Lucifer Chu, who has donated hundreds of thousands of dollars of his own money to translate MIT courses to traditional and simplified Chinese in a project called the Opensource Opencourseware Prototype System (OOPS). Lucifer is a highly energetic, funny, and charismatic leader who is changing the world through translation efforts and the ensuing sharing.

Fortunately, Lucifer’s OOPS project is hardly a one-act play. Sharing is about connections and one phenomenal resource for making them is, in fact, called “Connexions.” A visit to Rice University in Houston, Texas in November 2006—where the Connexions project is headquartered—confirmed that they had developed one of the fastest-growing and most widely used collections of online scholarly material in the world. As of January 2009,

Connexions contained nearly eight thousand course modules available for download in such areas as physics, history, music, computer science, nanotechnology, and biodiversity, resulting in tens of millions of page hits each month. With the innovative ideas of Professor Richard Baraniuk, the founder and one of the chief architects of Connexions, the Connexions people were not merely housing an extremely large repository of educational materials—they were building a powerful set of free software tools and resources to expand these sharing and collaboration efforts.

A similar and somewhat more established site, MERLOT, evolved out of the California State University Center for Distributed Learning in the late 1990s. By September 2009, it contained more than twenty-one thousand content resources and could boast seventy-three thousand members around the world using shared online resources as well as evaluating them in a peer-review rating system. Each time I explore MERLOT, I find the resources it contains stunningly impressive! Adding to its influence and outlets, MERLOT offers an annual conference, newsletters with names such as “Grapevine” and “In the Vineyard,” the Journal of Learning and Online Teaching (JOLT), a set of online videos and podcasts, and various online learning communities. Without a doubt, a resource like MERLOT fuels the sharing of teaching and learning around the planet.

For younger learners, there is Curriki, spearheaded by Scott McNealy, the CEO and Chairman of Sun Microsystems. Curriki has a mission to place free and open source K–12 curricula and instructional materials on the Internet that can be universally used by children and educators. Similarly, the Global Text Project is establishing a portal that will eventually have more than a thousand free open source digital textbooks to help educate disadvantaged populations in Africa and developing countries around the globe. Using such resources, instructors worldwide can enhance their courses with freely shared educational materials and pass them on to colleagues. It is somewhat astonishing the degree to which perspectives have changed since the first generation of educational computing technology just a few short decades ago. Fortunately, people are not longing for the good old days of computer-assisted instruction.

And the journey continues. Just four months after my November trip to Rice University, I was back on that campus in late March 2007 to attend a Hewlett Foundation grantees meeting. This gathering in Houston brought together those with funding from the foundation to share experiences about the open educational resources (OER) that they were developing, promoting, and evaluating—this was a meeting of sharers about sharing.

As I panned the room from the top row, I could see Lucifer Chu from OOPS, Richard Baraniuk from Connexions, Candice Thille from Carnegie Mellon, Tom Carey from MERLOT, Bobbi Kurshan from Curriki, and the well-known educational scholar John Seely Brown. In addition, arriving late was Dr. David Wiley, now of Brigham Young University, who had developed the online platform for OCW courses called EduCommons. My

colleagues Mimi Miyoung Lee and Grace Lin from the University of Houston were also in attendance. Each played a key role in the emergence and proliferation of the OER movement.

That is just a quick sampling of those in the room. It's important to note that there were also two board members from the Wikimedia Foundation—representing potentially the largest educational sharing site in the world. And there were people from MIT's XO laptop initiative—also referred to as the One Laptop Per Child (OLPC) project—that has an unprecedented opportunity to change the lives of youth in Africa, Asia, and South America. Local and global sharing of education will explode as inexpensive laptops are built and placed in the hands of waiting learners in third world countries. This is happening now!

Sitting in the midst of so many OER people in one space was truly invigorating and inspiring. Without a doubt, the OER movement is the single most fascinating and globally life-changing educational event to occur in my nearly twenty-five years in higher education. It may be the pinnacle outcome of the Internet. Indeed, OER has far-reaching consequences. Simply stated, as education is shared and consequently transforms the lives of millions of youth, so too are economies and international relations transformed, leading to further transformations in personal self-esteem and the potential for minor as well as major educational achievements and untold new competencies.

JOINING THE SHARING REVOLUTION

It does not matter where I travel or with whom I communicate now, the stories I hear are much different and, at times, exceedingly optimistic. The seeds of sharing have successfully grown and ripened into assorted educational fruits. No longer are there mass protest rallies against online learning or the sharing of such resources and learning. Visits to various cities in Taiwan, Thailand, the United Kingdom, Saudi Arabia, the UAE, Korea, and Canada since the end of 2006 confirmed this for me. At each stop, people asked me if it was acceptable to videostream my talks. In response, I quickly told them to podcast, videostream, Webcast, pubcast, or do whatever they wanted with it. And feel free to post my slides, my talk abstract, picture, or bio as well. All education should be shared. The more we share educational resources, the more the knowledge of this planet is opened to its learners.

So what can you share to help education around the world?

1. **Mentoring:** You can sign up to be an online mentor, coach, or tutor in your area of expertise. Many professional organizations today include some type of mentoring services, including engineering, teaching, business, and nursing.
2. **Course Content:** If in postsecondary education, you can share instructional content you have created in places such as MERLOT.org or Connexions. If in K–12 education,

perhaps contribute to or use Curriki or one of many online lesson plan sharing sites. Those in corporate, nonprofit, or government positions should talk to your training directors or chief learning officers about what sharing is possible within your organization. And informal learners and citizens of the world can create a course homepage or shell, podcast, or online instructional videos wherein they share educational ideas and experiences.

3. **Join the OCW Movement:** At an organizational or institutional level, you can share entire courses or programs in the OCW movement. Administrators need to consider putting forth proposals and strategic plans for such.
4. **Guest Expert:** You can be a guest expert in an online chat or Webinar. You might also podcast a lecture on a topic and place it on the Web for others to access for free, such as in iTunes. Along these same lines, you might videostream a lecture you give in a class, at a conference, or in a workshop for free distribution to the world community.
5. **Collaboration:** You can sign up at ePals or KeyPals to engage in online collaboration with another school. You might also share cultural artifacts or lessons for such collaborative activities and events. At the corporate level, you can share software problems and solutions, new product training, and additional intellectual capital in wikis, blogs, podcasts, or other appropriate technological outlets.
6. **Translator:** You might volunteer to translate open educational resources or OpenCourseWare in your native tongue.
7. **Portals:** You can create, index, or aggregate educational portals of online content. You can also market or showcase any new or consistently useful portals that you find.
8. **Evaluator:** You can help in the evaluation or rating of online content. You might also develop the methods and forms of evaluation to be employed.
9. **Software Developer:** Software developers can offer open source or introductory free versions of their software or special discounts for education.
10. **Blogger:** You can blog on current events in education, thereby sharing what is happening. At the same time, you can add hyperlinks within your blog, thereby stretching your post to other valuable educational resources, documents, trends, and events.

The list above is only a fraction of what is now possible. Clearly, opportunities for sharing our educational lives are exploding. This is a key part of the giving that Clinton was talking about. Sharing education is among

the most powerful acts of giving that human beings can engage in. And such educational sharing can take place in a wide variety of formats.

Sharing can be casual among friends who teach the same course and want to benefit from what each other has developed or accomplished. Such collegial sharing might involve a new instructional activity to test out, or a video you've just found in YouTube, CNN Video, or the BBC News and Videos. Each instance of sharing among these friends and colleagues, casual as it might be, allows for innovations, changes, and new ideas to be piloted and perhaps someday flourish in other disciplines not originally intended. Sure, instructors have always shared their resources with friends, but not at the speed or intensity possible today. Though some share educational ideas using e-mail, text messaging, and comments to online discussion forums or communities, many others now prefer their sharing to be conducted in social networking sites like MySpace, LinkedIn, Digg, Facebook, and Twitter. Still others employ free online phone services such as Skype and Google Talk.

Such sharing is often creative, spontaneous, and somewhat haphazard. As a result, it is virtually untrackable. But as evidenced by the millions of visits to these sites each day, it is happening! Sharing can also be more formally designed and documented in popular news media as in the OCW sites, or in the translations into additional languages as in the OOPS project. What institutional leaders and politicians need to figure out is how to foster and encourage both formal and informal sharing pursuits. How can they perhaps nudge them along, embed recognition for them, and celebrate their successes?

The scope of online sharing certainly varies. It can occur among just a few individuals or perhaps benefit only a single person for it to have value. At the same time, it can be used by teams, schools, local communities, countries, regions, or the world community. Sharing can be sensed in a fleeting moment in time and then dissipate. It can also be much more lasting and even viral, thereby spreading to people far beyond the originally intended audience and recurring a million times over.

The fourth generation of educational technologies has not only made sharing possible, but also highly encouraged. For millions of people spread far and wide across this lovely planet, these technologies are indispensable; this is how countless individuals today spend the learning-related aspects of their lives. Consequently, stories of sharing in education will be part of teaching and learning lore for decades to come. Teachers will continue to be givers, but everyone involved in education or training, no matter the role or capacity, will be sharers as well as sharing receivers.

There are no shortages of sharing opportunities today, nor will there be in ten, twenty, or a hundred years from now. With each passing generation, sharing will become increasingly synonymous with education, because sharing, like giving, is at the forefront of what it means to be human. Each person walking this planet will be expected to share his or her ideas, talents,

expertise, wisdom, products, computing power, bandwidth, scientific discoveries, and educational materials with others using various forms of online technologies. Such is life in the twenty-first century and beyond.

As in Bill Clinton's documentation of how giving can change the world, through sharing, anyone can make a small dent in solving educational problems and implementing progressive educational reforms. What will you share and where might your journeys in this exciting arena lead? I hope you find time to share your results.

Please let me know what transpires. I look forward to hearing about your innovative sharing pursuits.

Curtis J. Bonk

This document is a prequel to:

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