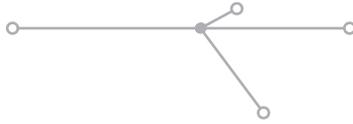


**LEARNING**  
AT THE  
**SPEED**  
OF **LIGHT**



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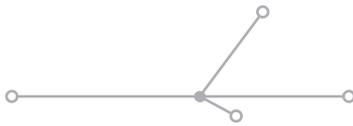
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## DEDICATION

This compilation of histories and recollections on the evolution of online learning is dedicated to two extraordinary men, Ralph Gomory and Frank Mayadas. With the support of the organization of which they were a part—the Alfred P. Sloan Foundation—Ralph and Frank, in little more than two decades, have done more to increase access to education (at all levels) than anyone in memory. To them, we offer this collection of essays with gratitude, in the hope that their work, as recorded here, will persist.

## RESULTS

As can be seen in various accountings, somewhere between a quarter and a third of *all* enrolled higher education students, of which there were more than twenty million in 2015 (NCES, Fast Facts), were enrolled in at least one online course in fall 2014. According to the Babson Survey of Online Learning, the actual number in 2012 was 7.1 million. Additionally, more than 2.6 million were completing their *entire* degree online in 2013 (NCES, Fast Facts).

## THE HISTORY

In addition to providing millions of dollars in grant money (\$72 million to 346 projects) to institutions that have traditionally been seen as leaders in the adoption of innovation (“If it’s okay for Berkeley or Harvard, we might want to follow their lead”), the Foundation created, and for many years supported, a national survey of attitudes and acceptance in regard to online learning, as well as the consortium known as Sloan-C. Together, these initiatives provided objective data about acceptance and growth while mobilizing the “true believers” to share lessons learned, as well as to promote expansion of the revolution and the unprecedented access it offers.

### *Ralph Gomory*

Ralph Gomory’s name is less well known to those of us in the online sector than that of Frank Mayadas. Yet, as Frank will quickly attest, there would not have been the kind of rapid growth and acceptance that we have seen if not for Ralph and the Anytime, Anyplace Learning project that he designed and then implemented with Frank.

Having been IBM’s senior vice president for science and technology prior to being named as Sloan’s President, Ralph brought an extraordinary academic and professional background to the foundation. A graduate of Williams, Cambridge, and Princeton, as well as a veteran of the US Navy, he had served in a series of research posts with IBM. As director of research, he oversaw IBM’s Zurich Research Laboratory and work that received two successive Nobel Prizes in Physics.

Coming to Sloan in 1989, Ralph invited Frank, also at IBM, to join him in “retirement.” Frank accepted in 1992.

### *Frank Mayadas*

Before joining President Gomory at Sloan, Frank spent twenty-nine years at IBM, heading research operations and serving as an advisor to the company’s corporate management team on matters of strategy and management. At Sloan, he joined with Gomory in the establishment of the Anytime, Anyplace Learning initiative (a.k.a. the

“Asynchronous Learning Networks” initiative), the annual survey and report of online growth (the Sloan/Babson Report), the Sloan-C Consortium, of which he was the founding president, and *The Journal of Asynchronous Learning Networks*.

### *The Team*

As the face of Sloan to participating institutions, Frank has become known as the “father of online education in America.” Yet, this paternity must be shared with the man whose ideas ALN sprang from, and who ensured that the all-important financial support followed Frank’s assessments, Dr. Ralph Gomory.

### *The Future*

Together, Gomory and Mayadas have carried out a revolution in American higher education. While too modest to be comfortable with this fact, their legacy speaks for itself. Nearly all regionally and nationally accredited institutions, along with entire secondary and elementary school systems, now offer online instruction to varying degrees. The “father” and “godfather” of online learning deserve to be recognized, now and in the future, for bringing this phenomenon to reality, and also for doing so in such a short period of time.

Well done, gentlemen.



**LEARNING**  
AT THE  
**SPEED**  
OF **LIGHT**

HOW ONLINE EDUCATION GOT TO NOW

**JOHN F. EBERSOLE**  
AND  
**WILLIAM PATRICK**  
EDITORS

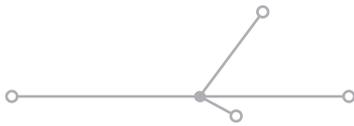


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## ACKNOWLEDGMENTS

I would like to personally thank the contributors for giving so generously of their time and expertise, and for remaining committed to the project even after John Ebersole's untimely death. What a tribute to the bonds of friendship and professionalism.

I would also like to thank the talented production team for starting and finishing this project with me: John Barnett, Melissa Mykal Batalin, Sue Morreale, Jessica Knight, and Heather Dubnick.

*Susan M. Petrie*  
Publisher and Managing Director  
Hudson Whitman/ Excelsior College Press

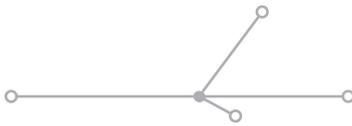
In addition to those listed above, I would like to thank William Patrick for working tirelessly to help bring this project to completion. We would also be remiss if we did not include all of the technical experts who were also part of this REVOLUTION. Without their

creativity, commitment, and collaborative efforts, we would not have gotten HERE. That includes faculty, instructional designers, software and hardware developers, illustrators, technical and business people, and those who helped with regulatory issues. At one point in preparing this, I thought I might have the space to list everyone by name. However, I not only find I don't have enough space, but am fearful my recall would be insufficient. Thus, our amazing contributors will stand as surrogates for the many. We are indeed grateful to our authors and the substantive way they responded to our requests, and believe that together we have created a book of truly long lasting relevance to higher education.

*John Ebersole*

“Sometimes the fall kills you.  
And sometimes, when you fall, you fly.”

—*Neil Gaiman*



## **INTRODUCTION**

In the Beginning

*John F. Ebersole*

The delivery of instruction by computer can be traced from the 1980s. My own experience started in 1985 while serving as dean of the School of Management at John F. Kennedy University, then in Orinda, CA.

JFKU's president, Dr. Donald MacIntyre, had met and developed a relationship with a fellow Marin County resident by the name of Ron Gordon. Ron was CEO of the San Francisco-based start-up, TeleLearning. Founded in 1982, the venture intended to use computer technology to deliver instruction. Toward this end, it created The Electronic University Network (EUN) the same year. This network included major colleges and universities from around the country. Ron sold them on the idea of participating in both an emerging technology and outreach to a national market. The nearby Stanford School of Engineering was one of the first to sign on, and its doing so made the attraction of others more likely.

Ron had previously served as CEO of the electronic game company ATARI (in the 1970s) and had accumulated some wealth with

that enterprise's success. A serial entrepreneur and master at marketing, Ron, along with a group of investors, had formed TeleLearning after he left ATARI.

With a roster of big-name schools to point to, Ron proceeded to do what he did best: launching a marketing and sales effort to America's top corporations. His vision that employees could complete or acquire a degree through computers, modems, and telephone lines, was infectious.

By the time that he had enlisted forty Fortune 500 companies, it was clear that there was a market for electronically mediated instruction *and* that the MBA was the credential of choice. While encouraging, this news was frustrating in that all the network had to offer were standalone courses. There was no MBA. This was where MacIntyre, JFKU, and I entered the picture.

Once aware of Ron's need, and the potential that it represented, Don was anxious that JFKU become a part of what had the potential to be a large-scale, national experiment. He offered Ron the MBA he needed, subject to approval by our accreditor, the Western Association of Schools and Colleges (WASC). It then fell to me to make the case for approval to that body.

Appearing before the association's executive director and chairman, I presented the reasons for approving our offering as essentially an experiment, from which all of higher education might learn. While extremely skeptical, the "researcher within" the two men prevailed. John F. Kennedy University was authorized to offer its MBA, so long as all requirements were met (albeit electronically), and the institution provided the association with quarterly reports.

The EUN was now in business. In addition to niche courses from big-name institutions, it had the graduate business degree from a regionally accredited source, as desired. In return, employers such as Pepsi, Frito Lay, and Freuhauf offered to pay the costs associated with employee enrollment.

This all occurred in 1985. By 1986, JFKU was ready to launch its pioneering MBA, or at least it thought it was. Within days of

accepting enrollments, it was clear that this “experiment” would not unfold smoothly.

A great number of students had neither personal computers nor modems, and employers were unwilling to go so far as to provide this equipment as part of their support. The cost of most commercially available equipment was prohibitive for the majority of the growing number of degree seekers. As a solution, Ron placed the university in contact with a South Korean supplier, which offered the university’s students both pieces of equipment (CPU and modem) at a reasonable price. The only problem was the firm’s requirements that orders be placed in bulk and that all shipments to the US go to a single, West Coast address (to reduce shipping costs). JFKU’s School of Management and its Access to Learning project soon became the site of a shipping and receiving operation for the needed electronics. With this problem resolved (sort of), others emerged.

The creation of lesson templates, such as those shown in Stephen Andriole’s article, the identification and training of faculty, and the process for communication between students and faculty were all problems that followed. The TeleLearning programmers, working with JFKU’s faculty, were unable to stay sufficiently ahead of the pace of instruction. Thus, students found themselves waiting weeks for the next lesson or next course.

While enrolled students were growing increasingly dissatisfied, the recruiting of new students slowed as word of the problems spread, and the TeleLearning/JFKU team ran out of marketing money. This was the beginning of the end. Ron’s fellow investors soon elected to sell TeleLearning, for pennies on the dollar, to Dr. Steve Eskow, the former president of Rockland Community College in New York, and his partner, a former publishing executive. Unfortunately for the Eskow team, their purchase carried no obligation for JFKU, which announced its termination of the program once current students were taught-out. There was still no other online source for either an accredited MBA, or any other degree.

Although the electronics had worked more or less as intended, software programming and many of the basics of new enterprise creation

(such as sustained marketing and supply chain management) were the effort's undoing. In the end, MacIntyre moved from JFKU to become the first chancellor of the University of Phoenix's evolving international expansion. In making his departure from JFKU, he was offered the intellectual property that had been created with TeleLearning (under a joint ownership agreement), which he took with him to the University of Phoenix and its parent, the Apollo Group.

All of this took place within a span of just three years. By the 1990s, a new day was dawning. It is here that this collection of remembrances and recollection picks up, reviewing and assessing two decades of more successful experimentation and academic program launches (such as those at Drexel, Penn State, UMUC and UC Online, (which connected the UC system's Center for Media and Independent Learning into a trove of AOL-delivered online courses, but not degrees). Most of these early attempts (especially those that became successful, and that still exist) were funded by the Alfred P. Sloan Foundation, at the direction of its visionary leaders, Ralph Gomory and Frank Mayadas.

The early '90s also saw much failure, as is often the case in moving new ideas to reality. The most notable of these were Columbia's Fathom, NYU Online, and the California Virtual University (which really never got off the ground). Babson, Cornell, Duke, and the University of Illinois found ways to learn from their missteps and remain in the market, albeit largely with non-credit offerings that met faculty criteria and limitations.

In looking back over the past thirty years, it isn't hard to see that the move toward online education has followed significant distance education patterns of the late nineteenth and early twentieth centuries. As Michael G. Moore, pointed out in his seminal work *Distance Education: A Systems View*, with Gregg Kearsley, the correspondence course was the earliest form of distance education. The University of London is credited with having awarded an entire degree based on study from correspondence courses, as early as 1850. Huge correspondence course operations could be found at the open universities of Turkey, India, and the Commonwealth countries of Great Britain,

as well as in the University of California system (which did not convert to online technologies until the mid-1990s), until the beginning of the twenty-first century.

Acceptance of the correspondence course as a legitimate form of learning grew in the US when William Rainey Harper moved from heading the Chautauqua Institute, where correspondence courses were used for religious education, to the University of Chicago. His advocacy of correspondence study would later guide such institutions as the University of Wisconsin, the University of California, BYU, and the Department of Defense. Credit accumulation through paper and pencil “correspondence” study from the US Armed Forces Institute (USAFI) was especially necessary to the highly mobile members of the armed services. I know this from personal experience, having survived a year on an island in Alaska. However, it was not possible to complete a degree with such credits until the creation of Regents College, now Excelsior, in 1971.

“Correspondence study,” which continues to be a US Department of Education classification for technology-delivered instruction, was followed in the late 1960s and ’70s by other forms of distance education. Instead of exclusively mail-dependent communication, both Canada and Australia found ways to use telephone lines, radio broadcasts, and video tapes, in that order, for providing access. In the US, Colorado State and the University of Colorado, Colorado Springs, teamed with Jones Cable to offer something known as Mind Extension University, which was accessed in multiple communities nationwide via cable TV. CSU, Fort Collins was a pioneer in getting its televised MBA accepted under its accreditation from the American Assembly of Collegiate Schools of Business (AACSB).

The engineering disciplines within higher education developed the next generation of distance education, using video technology under the direction of Lionel Baldwin, CSU’s then just-retired dean of the School of Engineering. Supported by such institutions as Stanford, the Illinois Institute of Technology, Georgia Tech, and Colorado State, to name but a few, they created the National Technological University (NTU), which went so far as

to gain Higher Learning Commission (HLC) accreditation and the authority to award its own graduate degrees. In this case, the instruction originated with such faculties as those of Berkeley, Stanford, MIT, and IIT, and was delivered through videotaped lessons that were then rebroadcast via satellite from the NTU campus, adjacent to Colorado State. These would downlink to VCRs and classrooms in major corporations across the nation, as well as to institutions overseas.

Glenn Jones, the power behind Jones Cable and Jones International University, along with Lionel Baldwin, the former CSU dean and NTU's founding president, were followed in the pioneering ranks by John Sperling, founder of the University of Phoenix (UoP). These three were not only early higher education entrepreneurs, but also important foundation builders for the online revolution. Glenn recognized the value of moving to the Internet first, seeking regional accreditation from the HLC for his Jones International University, which has since closed, before John Sperling's move online but *after* the University of Phoenix had become the first national, for-profit, online institution to gain regional approval.

John Sperling and UoP contributed little to the online movement initially. The university had far too many real estate leases to embrace the full potential of online learning in the early years. However, as those leases expired, and UoP started to realize the savings presented by the Internet, enrollments took off.

Sperling, while always controversial, deserves greater positive recognition than he has received for his success in drawing the attention of traditional institutions such as Berkeley, Colorado State, and Boston University, to name only those where I served, to the adult student. Starting from a base in the San Francisco Bay area, Sperling, a San Jose State economics professor, saw the need and the potential in serving adult learners. Beginning with the University of San Francisco, where Don MacIntyre was then provost, he added Saint Mary's of California and Regent University of Colorado, all Catholic institutions (two Jesuit and one Christian Brothers), before the Western Association of Schools and Colleges

(WASC) shut down his operation (then known as the Institute for Professional Development, or IPD). He was offering degree programs with little or no faculty oversight and was the hiring authority for instructional faculty. He argued, with some basis, that faculty oversight would essentially kill the effort. Few professors were interested in the night and weekend instruction required by those adults working full time. Unlike non-profit John F. Kennedy University, which encountered little difficulty in obtaining WASC recognition, Sperling and IPD weren't able to shake the stench of making money off of education.

Sperling, Jones, and Baldwin all focused on the working adult. While not totally ignored by traditional institutions, older students found many more choices for non credit courses than for either graduate or undergraduate degree programs—such as those offered by these pioneers. Today, the adult students (age twenty-five to sixty-five), whom Sperling and MacIntyre sought to serve in the 1970s, represent nearly 80 percent of all degree-seeking students, once part-timers and commuters are included. And as the eighteen-to-twenty-four-year-old population continues to shrink, more of those who criticized Sperling and Jones now see the wisdom of their early focus.

Unfortunately, Colorado State and NTU both fell victim to their inability to adapt to online, Internet-based learning. Prior to the web movement, faculty had been able to offer their instruction even at a distance without any special preparation or extra effort. A lecture before video cameras was only slightly different than one in a traditional classroom—and there was often no difference, with cameras mounted in the back of a regular room. Sure, the homework came via US mail, but that was about it.

With online, there was much work that had to be completed in advance of a class, especially if the students were to be retained. During the late 1990s at CSU, I found few instructors interested in the work, or in the risk of embarrassment that came with building a web-deliverable course, for which I was empowered to offer a \$1,000 incentive. My successors found it necessary to create an entirely new