It is characteristic of individuals, institutions, industries, and entire societies to misjudge the future. They do so by simultaneously exaggerating, belittling and fighting change, according to Eli Noam, Professor of Finance and Economics at Columbia Business School and Director of the Columbia University Institute for Tele-Information.

The future of books and the university is being similarly misunderstood. Noam believes that, inescapably, books as a physical entity eventually will become a secondary tool in academia, their role usurped by electronic media. The firms associated with books, publishers, will decline, and the role of the university will change dramatically.
Books Today

Books exist in academia in four major types:

• *texts*, as source material for analysis
• *textbooks*, for instruction
• *scholarly monographs* and edited volumes, for dissemination of research and broader discussion
• *academic journals*, also for dissemination of research

The first type of book—source materials—will be least affected by technology, although rare books increasingly will be stored electronically for better protection and wider accessibility. In any event, this category is economically insignificant.

Textbooks and the Traditional Classroom

Textbooks and the traditional classroom will be affected dramatically by electronics. Given the price tag associated with the prevailing low-technology lecture system, it is hard to imagine that the current focus on student-teacher interaction can be sustained. Today, private universities charge a tuition of nearly $50 per lecture hour per student—about the price of a Broadway show.

Monographs and Journals

The third type of book—scholarly monographs and edited volumes—poses a bleak future for its publishers. The market for such books consists of individual specialists and libraries. Individuals’ options for alternative sources of information are growing, many of them significantly less expensive (or free), more rapidly disseminated, easier to search, and catchier to a short-attention-span generation facing the age of information glut.

Academic libraries are the second major category of buyers of scholarly books. This market must by necessity contract. Powerful information technology has led to an enormous increase in the amount of information produced in society. Most branches of science, for example, show an exponential growth of about 4 to 8 percent annually, with a doubling period of 10 to 15 years. With the production of scholarship rising rapidly, so too does the cost of acquisition and reference. Traditional, comprehensive library collections have become unaffordable; meanwhile, electronic alternatives have become powerful in storage, broad-ranging in content, and efficient in retrieval.
Thus, libraries will shift gradually from investment in the physical presence of information to electronic access.

These changes will lead publishers to issue many books on an on-line basis, and many authors toward self-publication, bypassing commercial publishers. Selectivity and refereeing still could be provided, but it would occur outside the traditional publishing model.

The fourth type of book in the higher education sector is the bound academic journal. The entire economics of scholarly journals are unsustainable, waiting to collapse. The acquisition and storage cost to libraries of a reprinted journal article has been estimated at $12,000. In constrast, the cost of an article in electronic form is $300 to $1,000, significantly lower than the $4,000 charged by traditional publishers. Storage costs, too, are lowered dramatically. Thus it is likely that eventually commercial publishers will be bypassed by authors, departments, and professional associations.

The Decline of Books

These trends add up to a significant shift away from books in academia, the inner sanctum of the book culture. Academia and books always have enjoyed a symbiotic relationship, and talk of their demise stirs rousing defenses of the importance of books. But these arguments miss the point. It is not research, teaching or publishing that are on the decline, but rather their current main medium—the bound, printed, paper volume.

Books are yesterday’s technology. Those in academia, who love books, lament their decline. But is it not knowledge that we really cherish, and aren’t books merely the receptacle? A new and creative medium is knocking at the door, one that should be embraced.

Writing will not fade away either, it’s just that much of it will now take place over electronic screens. And it will be supplemented with a multimedia form of communications, with more visual and symbolic information. The future belongs to services that can provide multi-channel forms of communication, incorporating pictures, symbols, and video clips.

Conclusion

The comparative advantage of traditional universities will be the learning environment they offer; if they focus solely on their informational role, they will rapidly become obsolete. The question, though, is whether large universities can establish the educational setting that sets them apart from commercial providers and justifies their additional expense. It may be that just a few small and expensive private institutions can continue without significantly changing the way they operate. The remainder will have to undergo fundamental change as technology permits mass production of instruction, and commercial competitors transform the higher education marketplace.

Eli Noam is Director of the Columbia University Institute for Tele-Information and Professor of Finance and Economics at Columbia Business School. Before joining the Columbia faculty, he was a visiting professor at Princeton University. Noam served as Commissioner of the New York State Public Service Commission from 1987-90. He is author of more than 250 papers and articles on communications, information, finance and negotiation. He also is the author or co-author of several books on telecommunications.