

*Draft but may be quoted*

Correspondence to rich@hoover.stanford.edu

Phi Beta Delta

General Chapters Meeting, Montreal

**Latin American Education's Computer Crisis:  
Putting Computing Into  
the Social Science Syllabus**

**Dr. Paul Rich**

*University of the Americas-Puebla*

*Hoover Institution, Stanford University*

**We owe Jim Fletcher a debt for a conference topic, which is so important. The presentations this afternoon, as throughout the congress, deal with issues that concern everyone regardless of their country, and regardless of whether they are educators, students, or parents. However, the effect of the computing revolution on the curriculum is perhaps more of immediate concern to those of us in countries like Mexico where the choice of where to put resources is particularly critical, and in the case of my own presentation to those who determine course content, although obviously everyone is going to be involved with these issues sooner or later.**

Thanks to the E-Rate (government subsidized links) 95% of the schools in the United States are now connected with the Net, and 63% of the classrooms within. Forty percent of college classes are using the Internet in one way or another. Worldwide more than two million people are enrolled in Internet and Web degree courses.<sup>1</sup>

Nevertheless, classrooms are still at least vaguely recognizable by those of us who can remember who Peter, Paul and Mary were, but what the computer revolution is going to mean for the curriculum in coming years is unsure. Recently the Pennsylvania Department of Education had a competition, offering fifteen million dollars for the three school districts with the best plans for going digital. The contest was to meet what some think is a lack of vision about the use of computing in education.. The three winners put forward very different uses for the Web:

**The Quaker Valley district sees the end of physical schools and the radical diminishing of grade levels. Precocious classes will work at advanced levels, using college materials. The public library will become a focal point for studies.**

**The Spring Cove district puts kiosks around town, in post offices and grocery stores and libraries, where students as well as the whole community can access course material at any time and where instant evaluations are offered.**

**The Carlisle district features online tutoring for slow students, virtual reality, and accelerated learning.<sup>2</sup>**

Belief in e-learning is growing by bytes and bounds, and it is important to keep in mind that just to keep up with the computing Joneses is not the main reason for planning the electronic future of education.<sup>3</sup> The main reason is that our students already live in a world transfigured by the language of computing. Their language is already digital. **So I would put first and foremost the simple fact that if we want to communicate with students whose language is computing, we have to be more aggressive as teachers about our use of computing.** There are a lot of jokes about solving computer problems by calling in the thirteen-year old from down the block to fix things, but it is no laughing matter if as he goes home after finding the reset key he thinks that school has no relevance to real life. This revolution is far more profound than that of film strip projectors.

Not everyone is happy about this, particularly in the treasurer's office. Stretching over the horizon is a road of red ink; an infinite future of increasing costs seems in prospect in order to provide schools and colleges with an adequate computing infra structure. In fact, currently a best selling book in France is entitled *The Computer Deception*, in which a professor accuses the computer industry of duping people into buying machines they don't need and claims that we are all in danger of brain degeneration as with all the use of computers we are developing the analytical left side of our brains rather than the creative right side.<sup>4</sup>

What everyone does agree is that the discussion of education and computing is right at the top of the list as far as concern and debate are concerned. We are indeed meeting in a country where the October 1999 Throne Speech pledged to make the Canadian government the most connected one in the world.<sup>5</sup>

With the tremendous interest in testing, we can expect that curriculum tied to the computer is going to be more and more the preferred option. It seems to me that this will bring down the walls between school, university and commercial

course planning, and it may literally bring down the physical walls except for a very few elite institutions. We also have to avoid re-inventing the wheel, which means that both administrators and teachers have to realize that many of the syllabi being posted on the Net are superior to what we can do ourselves. There are now more than 3000 different course titles available and many have all kinds of subsidiary files of maps, photographs, original documents, and even cheat-proof tests.<sup>6</sup> Why should thousands of teachers be redoing syllabi which are on the Web and are far better than anything that can be done locally?

**So the second point I would make about the effect of computing on the curriculum is that we are going to be individualizing the programs much more than in the past. We can tailor the material not only to a class but to a student. If we don't know how to do that, we are in trouble.**

There are some other obvious implications. One is the home schooling, which is already growing fast, will be more and more sensible when parents realize that it is just as easy to have the child at home on the computer as at school on the computer. Unless a teacher can justify his or her value as a monitor and mentor of the computer resources, home schooling will even seem preferable. And I believe that as home schooling grows, it is not going to be long before we see an increased demand for home university schooling. There are now two million students being home schooled and the increase is about fifteen percent a year. Ninety-four percent of the homes involved in home schooling are on the Net.<sup>7</sup>

**A third point I want to make this afternoon is that while the ever growing role of computing in education is influencing all subjects, that there are distinctions between the subjects as far as impact.** For example, I don't feel competent to comment on the extent to which some laboratory experiments -- recalling my own biology classes in high school in which we bravely faced frogs

and worms -- will be enacted on the computer. Like you, I am aware that simulated operations on the computer are now part of a doctor's education, so I would suppose that the natural sciences are going to make increasing use of simulations at all levels.

Nor, in the case of the humanities, do I know what the impact is going to be on language studies, although I have read like you that we will each have a little translation computer at congresses so that whatever we say will be intelligible to the other delegates, even if Japanese must be rendered into Spanish and Spanish into Bulgarian. I do know that the language department at the University of the Americas asked me to be careful about letting students have access to advanced translation software, although that seems to me to promise to be about as effective a safeguard as controls over foot-and-mouth disease.

In confining myself to the influence on the social sciences, which is certainly a big enough field, I do emphasize that in many ways computing is impacting all fields in similar ways. One of these is in its influence on the production of books. Jason Epstein, for many years the editorial director of Random House, provides the following vision of our near future:

**On the infinitely expandable shelves of the World Wide Web, there will be room for a virtually limitless variety of books that can be printed on demand or reproduced on hand-held readers or similar devices. The invention of movable type created opportunities for writers that could not be anticipated in Gutenberg's day. The opportunities that await writers and their readers in the near future are immeasurably greater**

**The obstacles imposed between readers and writers by traditional publishing practices – a system of improvisations accumulated over generations from the**

**vagaries and impasses of obsolete technologies – will wither away. The global village green will not be paradise. It will be undisciplined, polymorphous, and polyglot, as has been our fate and our milieu ever since the divine autocracy showed its muscle by toppling the monolingual Tower of Babel.<sup>8</sup>**

We all have a book problem because nobody's purse is large enough to keep up with the escalation in book prices, but in many Latin American countries the situation is particularly black. Mexico recently has been spending less than 2.3 percent of its gross domestic production on education while the United Nations recommends that countries spend eight percent. The new president promises more, but new books in the classroom are sadly lacking. In the emerging North America the only way forward is by education, by educating the new generation of Mexicans to compete in the new North America.<sup>9</sup> So the programs the University of the Americas students have been discussing with us are not novelties but necessities.

**My fourth point is that computer education is eventually going to prove cheaper than conventional education.** An understandable but unwarranted reaction to the growth of computing in education is that the price of these changes is becoming almost unbearable. In actual fact, it is the price of the old world of pulp and paper that has become unbearable. Subscriptions to some technical journals now cost libraries more than \$1000 a year. Even in the United States, reading lists that are given to students place a horrendous burden on their budgets.<sup>10</sup>

A point which is being missed both about expenditures and about curriculum reform is that staying with books and printed journals does not eliminate the need to reference the Web, because the citations and suggested further readings are going to more and more refer to the Web. The printed word

increasingly becomes a guide to the Web. So I fail to see how anyone is going to design a new syllabus without reference to the Web.

Another negative argument, which we have all heard many times, is that the Internet is not selective. That is perfectly true, but coming to you today from a stint as visiting professor at the Library of Congress with its over one hundred million items, I don't know of any great library is selective. Epstein says:

**These new technologies will also test the human capacity to distinguish value from a wilderness of choice, but humanity has always faced this dilemma and solved it well enough over time. The World Wide Web offers access to any would-be writer who may or may not have something to say and know how to say it. Distinguished Web sites, like good bookstores, will attract readers accordingly. The filter that distinguishes value is a function of human nature, not of particular technologies.<sup>11</sup>**

Constructing a syllabus is becoming harder than it used to be because of this Web pluralism.<sup>12</sup> The answer I believe is to use the already successful syllabi on the Net.

**My fifth point is that the different means of distributing information are not going to maintain their apparently separate identities.** For an institution to be on the forefront of information technology is to understand that what appear to be distinct media today are similar in the ways that they are generated. A corollary of this proposition is that the computer is increasingly being used by teachers and students in the way that other generations used the telephone; most people under the age of forty grew up using computers with the

same facility as the phone. This convergence of these technologies is not without pain.

The technological changes have been as fast-paced as the economic ones.<sup>13</sup> An illustration of how quickly times have changed is backbone service. Some of these services now carry 1400 pages of single-spaced typed text per second. A twenty-volume encyclopaedia passes in under 23 seconds. This is a necessity because of the increase in users.<sup>14</sup>

**My sixth point is that even if we like the old ways, the conventional use of bound books and paper files is incapable of handling the demands of modern life and there really is no choice about accepting rapid innovation.** The day has arrived when not just the titles but the entire contents of a work can be searched. This applies whether the original media was film or recorded sound or book or picture — if the scanner and computer are adequate. Anything which is digitalised can readily be indexed and found by electronic tools., transcending notions we have about different machines for different purposes.

So far I have been discussing the consumer viewpoint, the student viewpoint about all of this – and, so far as the teacher is a consumer of what scholars write, also the teacher-consumer viewpoint. **My seventh point, and the one which I wish to devote considerable time to discussing, is that the traditional author of textbooks and scholarly books and articles is being impacted by publishing on demand.**

I would like to use a personal example if I might. Possibly my own experience with iuniverse, one of the largest World Wide Web publishers, may be

useful in assessing where the new technology is taking scholarship. Publishing on demand is a recent phenomenon, and most of the companies were started in 1999 or 2000. Some of the biggest include Xlibris, ipublisher, indypublish, and upublish. These concerns have all quickly forged connections with other companies; iuniverse is 49 per cent owned by Barnes & Noble and Xlibris is in effect a Random House subsidiary. The competition is fierce and resembles the competition of Yahoo, AltaVista, and Google to be the prime search engine. At least for the moment, authors are being courted – which for most of us is an unusual experience.

These online companies are accepting newly written manuscripts, but they have a special interest in republishing books which are out-of-print. In the case of iuniverse, it has acquired backlist titles from both Harvard University and Columbia University Presses and is working with special groups like the Harlem Writers. Books that Harvard published years ago, such as Trotsky's notebooks, and which have long been unobtainable except from antiquarian booksellers, are now back in print.

When a book goes out of print, it is not just the possibility of its being used in a course or placed on a reading list that is diminished. Most of us are good customers for our own books and end up giving copies, albeit parsimoniously, to students and friends, as long as the supply lasts and we can afford it. In an

informal survey of colleagues, I find a surprising number who have one copy left of a book they wrote, or even, to their embarrassment, no copy at all. As far as I am concerned, the opportunity to put out of print titles back into print is a gift from heaven.

Most of us who have published know the frustration of trying to secure a second edition when a book does go out of print. The rights are under most contracts supposed to revert to the author but sometimes presses are very dilatory in deciding, which they usually finally do, that they will not reprint. When the rights return to the author, the chances of finding another publisher are limited. There may be a slight demand for the book but not enough to justify reprinting.

With the new online companies, nothing ever goes out of print. There is no expensive inventory of printed books to warehouse, although in some cases a number of copies are printed and shipped to retail bookstores when the publisher thinks impulse sales could be a factor. The book is ordered after viewing it online; iuniverse for example claims that placing the entire book online does not effect sales, although the choice of having the book online for viewing is left up to the author. The iuniverse logic is that if the cost of the book is kept low, people will be willing to buy it rather than try to read it on the web. Prices seem to be between ten and twenty-five dollars, which means that printing the book from the web site is not as cheap as buying the book.. Moreover, I think that many of us do

not mind if a colleague or student in Africa or Latin America who cannot afford the price is able to read the book in a library computer.

Letting people read the book on the web seems to be a fairly universal policy for these new publishers; most of the online publishers are evangelical about putting books online as a sales device and keeping the prices for the paper book low. Once one accepts this idea of having the book available free in a web form as well as on paper, another fear that springs to mind is that the printed book will be cheap looking. Before seeing about second editions for some of my own books I checked out the quality of the paper books by ordering several and was surprised at how good the printing and the binding were. Moreover, the service by mail is excellent. The new publishers have electronic bookstores but the books can also be ordered through Amazon and other electronic booksellers as well as through local “real” bookstores.

The marketing plan for iuniverse is to have an order desk along with computers for previewing books and the machine to manufacture the books in every Barnes & Noble outlet as well as every Kinko’s, and one thinks that if that materializes that the other online publishers will also be working out bookstore arrangements. The Barnes & Noble idea is that the customer chooses books, goes off to browse or have a coffee, and ;picks up the newly printed books in twenty minutes or so. These book making machines have rapidly evolved and they do an

amazing job on binding and covers. It is easy to imagine that they will be ubiquitous in a decade, present in all college bookstores as well as small town libraries and even the local drugstore.

I decided to take the plunge and offered iuniverse seven of my books and of editions I had edited: *The Invasions of the Gulf*, *Arab War Lords*, *Iraq and Imperialism*, *A Voyage in the Gulf*, *Wartime in Baghdad*, *A Soldier in Kurdistan*, and *Stanford Patriarchs*. This was rather like sending your children off to school for the first time. But the contract terms are generous, as the author is only tied to the publisher for a couple years. I opted for new cover designs and fretted about errors that I wanted to correct in the new editions. Editing takes place via the web. The proofs are posted at a site which the author gets the code to obtain and the changes are put on a form obtained via the web. There is, happily, a human being connected with all this and the editor I was assigned was very congenial. The seven books are now all in print in their second editions, forever.

The procedure with completely new books is similar although there has to be attention to the word processor used and the quality and copyright of proposed illustrations. A glance at the new titles being offered from the online publishers shows that American foreign relations is already one of the favorite subjects. Sales seem at least as good as with conventionally published titles. At least one

in universe title has made *The New York Times* bestseller list. An obvious advantage is that anyone in the world with web access can take a look at the book.

I have been unable to come up with a downside to all of this for those of us who want to get our now out of print books back into print. Being able to correct errors is a great luxury. Most of us who have had books published would welcome the chance to change at least some mistakes. In the case of *The Invasions of the Gulf* I had been haunted by a typographical error that created two individuals who were apparently British Political Agents in the Gulf when there was only one, Messrs. Arthur and Arnold Galloway. There is now only one and the imaginary Arthur has gone away and will not appear in my nightmares anymore.

A negative aspect to these developments is that this is an industry in a rush. These companies are extremely anxious to expand their lists and not anxious to spend time on editing. So if one is used to a lot of editing, it takes some adjustment. There is editing but all the schemes offered make it as minimal as possible. A book needing heavy editing is not for publishing on demand. If you have a book that needs a minimum of editing, these are not vanity presses and they will print the book and pay you royalties. When you start asking for editing, the enthusiasm dims.

Another caveat is that universities are conservative and I am not sure I would recommend this route for anyone looking for tenure. This is perhaps not

something for a newly minted PhD who plans to impress a committee, unless of course he or she has already published and gone out of print. Whenever online publishing is mentioned, the question of who is going to be the gatekeeper arises, which is legitimate. But I am on the boards of some journals and presses, and frankly the finances of academic publishing have been getting more and more precarious. So it is not clear that there will be gatekeepers of the old stamp even if conventional publishing survives this electronic onslaught.

The online publishers claim that in the next five years the demand for books on disk which can be inserted in handhelds and palm readers and, most importantly, the book readers which are now being sold commercially, -- along with the demand for collections of books on cds, will make paper publishing alone obsolete. In other words conventional publishers that survive will be forced to become electronic publishers because the demand will be for electronic texts.

Conventional paper publishing, they argue, is much less desirable than publishing with an online company that can provide all the different versions that will be demanded. That may be true for fiction, but whether or not scholarly books will be needed in those versions is still open to debate. It is clear that bundling a number of new books on a single historical topic, such as Cuban-American relations, would make sense for a library cd. Possibly some academics will find taking disks or cds on a sabbatical or trip and using a handheld reader will be

useful. I for one would prefer when I am not in a plane or on a beach to have the paper version.

Another virtue being claimed for the online publishers is that library catalogs are inadequate and much good research material simply goes unnoticed. For example, a book on American relationships with Canada that includes references to the French island of Miquelon will be found by a web search if the book is online but the Miquelon references might not be enough to have caused their mention in regular cataloging.

Much more could be said about all this, but I believe the debate in the next few years is going to focus on gate keeping. Why not let the reader be the gatekeeper, say the proponents. Faced by the spiralling cost of books and journals, and the fact that many good books don't get published because of continuing budget crises, we may have to rethink our views on publishing. After all, in any libraries are finding that transferring part of the onus for depth in collections to online services is an attractive alternative. We know very little about who makes the decisions of these online services to use various journals and articles. We just accept that the library has added another computer service.

What I do know is that when a book has already run the gauntlet of the gatekeepers and is simply out of print because of the increasingly commercial attitude of publishers, the publishing on demand industry is a new lease on life.

and can only be good for research. As for new work, scholars who are impatient about editorial decisions and discouraged by the economics of publishing will find these services immensely attractive. When the changes in the last few years that the Internet and World Wide Web have brought to the study and teaching of American foreign relations are considered, it would be foolish to believe that we have seen even the end of the beginning of this revolution. It is a revolution effecting not only the consumer, the student, but the producer, the scholar-writer.

This afternoon I have made seven points:

- 1. If we want to communicate with students whose language is computing, we have to be more aggressive as teachers about our use of computing.**
- 2. We are going to be individualizing the programs much more than in the past.**
- 3. While the ever growing role of computing in education is influencing all subjects, that there are distinctions between the subjects as far as impact**
- 4. Computer education is eventually going to prove cheaper than conventional education.**
- 5. The different means of distributing information are not going to maintain their apparently separate identities**
- 6. The conventional use of bound books and paper files is incapable of handling the demands of modern life and there really is no choice about accepting rapid innovation**

**7. The traditional author of textbooks and scholarly books and articles is being impacted by publishing on demand.**

Finally, let me close by putting forward some deliberately critical ideas that you can dispute if you wish during our question time:

**a. Asking students to access sites on the Internet and not asking them to construct sites is like asking them to learn to read but not to write.**

**b. Any syllabus today without Internet readings is a clear sign that the teacher is not doing his or her job.**

**c. Classrooms without computer plugs at the individual seats are increasingly looking as peculiar as classrooms without chairs.**

**d. Most school libraries should be computer rooms.**

**e. Accepting papers written on paper after spending all term in with a syllabus that is computer based is like reverting to a horse after using a car.**

For the last ten years I have been preaching that many schools and universities will continue to lack the money to build first rate libraries and that computer technology is a gift from the gods to solve that problem . When it comes to incorporating Net materials in a syllabus, the fact is that while in developing countries most schools have the possibility of having a computer link with the Internet, few will have budgets to sustain library development. If curriculum development ignores the economic realities of the developing world, then we are going to perpetuate a have and have-not situation. So no wonder that I think this is an important subject! The exciting new world we are entering is going to resolve many old dilemmas. 15

Thank you.

Dr. Paul Rich is Fellow of The Hoover Institution on War, Revolution, and Peace, Stanford University, and Professor of International Relations and History at The University of the Americas-Puebla, Mexico. Active in Harvard alumni affairs, he is President Elect of the American Policy Studies Organization and endowment chair of The American and Popular Culture Associations.

---

<sup>1</sup> “Online Education: Lessons of a virtual timetable”, *The Economist*, 17 February 2001, 69.

<sup>2</sup> Karen Thomas, “3 Pa. School Districts Going Digital”, *USA Today*, 22 February 2001, 3 D.

<sup>3</sup> A major mistake made by planners is to assume that information technology can be handled as a routine part of the operating budget. Because of the necessity of frequent updates, computing often has been treated as operating rather than project expense. The result is frustration, along with either unmet demands or gallons of red ink. Equipment is obsolete before it is acquired. Incompatibilities grow within the same school, let alone the whole organization.

<sup>4</sup> David Pringle, “Fan of Fountain Pen Argues Computers Have More Capabilities Than Most Need”, *The Wall Street Journal*, 27 March 2001, B7C. See Barbara Crow (University of Calgary) and Graham Longford (Trent University), “Re:presenting information Technology: The Rhetorics and Politics of Digitalization in State and Corporate Discourse on the Information Society in Canada”, unpublished paper c.2001.

<sup>5</sup> Crow and Pringle, 23.

<sup>6</sup> “Online Education”, 70.

<sup>7</sup> “Online Education”, 71.

<sup>8</sup> Jason Epstein, *Book Business: Publishing Past, Present and Future*, W.W. Norton, New York, 173-174.

<sup>9</sup> Unfortunately the new technology has required staggering resources. The 25 million miles of fiber cabling in the United States is being added to at the rate of 4000 miles a day. George Gilder, “Regulating the Telecom”, *Cato Policy Report*, Vol. XIX No.5, September/October 1997, 10.

<sup>10</sup> Imagine a remote jungle, in which sits a fine car. There are no roads. But the local people love the car. They sit in it and enjoy the view, protected inside it from wild animals. In fact, to scare away the tigers they can blow the car’s horn. They enjoy having the heater for cold nights and the air condition for the days. The radio provides entertainment. They believe that the car is designed for jungles, and specially made for the enjoyment of the jungle. One day an outsider comes along

---

and asks them where are the roads and why isn't the car being used for travel. The local people are astonished. Can it be that besides being so nice to sit in, that the car has still another function?"

<sup>11</sup> Epstein, 28.

<sup>12</sup> "In the technological future, readership of such books will expand as authors, with the help of editors and publicists, and no longer constrained by the turnover requirements of a physical marketplace, present their work directly to readers over the World Wide Web, where word of mouth is instantaneous, credible, and widespread." Epstein, 108.

13. The year 1994 in my opinion can be regarded historically as a watershed year in many respects.. A number of Mexican universities went online that year, and a great many academic and educational listserves began operating that year:, and (for example) it saw the birth of electronic sociology:

Date: Sun, 11 Sep 1994 22:32:52 +1000  
 From: Coombslists <Majordomo@coombs.anu.edu.au>  
 To: rich@udlapvms.pue.udlap.mx  
 Subject: Welcome to electronic-sociology-l

Welcome to the electronic-sociology-l mailing list!  
 If you ever want to remove yourself from this mailing list,  
 you can send mail to "Majordomo@coombs.anu.edu.au (Coombslists)" with the  
 following command in the body of your email message:

unsubscribe electronic-sociology-l rich@rico.pue.udlap.mx

Here's the general information for the list you've  
 subscribed to, in case you don't already have it:

Information about other Coombslists' forums can be obtained via  
 wais/gopher/www from the wais dbase "ANU-Coombslists-Index"

-----  
 Welcome to the ELECTRONIC-SOCIOLOGY-L electronic forum  
 on majordomo@coombs.anu.edu.au

This mailing-list was established to provide a world-wide  
 communications vehicle for the Electronic Journal of Sociology (ISSN  
 1198-3655), to provide a forum for discussing issues of the EJS, and

---

to initiate global connectivity for the discipline of sociology...”

<sup>14</sup> See “NSFNET Milestone”, *Berkeley Computing*, Vol.3, No.1, January-February 1993, 7.

15. This conference is an excellent opportunity to consider the growing bibliography about technology in education. My own short list of books to prompt thinking on the subject would include: David B. Bolt and Ray A.K. Crawford, *Digital Divide: Computers and Our Children's Future*, T.V.Books, New York, 2000. Mitchell Stephens, *The Rise of the Image and the Fall of the Word*, Oxford University Press, New York and Oxford, 1998, William J. Mitchell, *E-topia: “Urban Life, Jim – But not as We Know It”*, The MIT Press, Cambridge and London, 1999. John Naisbitt, *High Tech /High Touch: Technology and Our Search for Meaning*, Broadway Books, New York, 1999. Peter Luenfeld ed., *The Digital Dialectic: New Essays on New Media*, The MIT Press, Cambridge and London, 2000.