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# **CONTENTS**

Rinck PA.	The anomie of the information superhighways Rinckside 2023; 34, 1	1
Rinck PA.	<b>Politically correct scientific publications</b> Rinckside 2023; 34, 2	3
Rinck PA.	<b>Tablets versus textbooks. Back to the established roots</b> Rinckside 2023; 34, 3	7

# Follow-up - Columns Readers Liked

# The anomie of the information superhighways

## Peter A. Rinck



wenty-eight years ago I wrote a column about "the drawbacks of the information autobahn." In the meantime a new generation has grown up, smartphones dominate over most of the global population – many people are completely addicted to and dependent on them. Life without them seems (and in many cases is) impossible [1].

From the 1995 column [2]:

"Those using the superhighways are singing the praises of this new tool. Like highways for automobiles, the information superhighways or data autobahns are great, wide, fast roads that are free or inexpensive. In medicine, it seems that many problems can be eased by this technology.

"Attending conferences, reading magazines, or watching television can give the impression that computers and Internet will solve every conceivable question. In medicine, computers contribute to a patient's faster and better recovery. The patient's medical history is available on Internet. E-mail makes the health system cheaper."

Has the overwhelming enthusiasm of 1995 given way to more sobering thoughts, has the perspective changed?

For users of technology and information, the prospects are mostly fascinating. Much has been said and written about the new possibilities, the irrelevance of distance and difficult access, and the dream future of democratic distribution of information.

The promise was of easy and free (or, at least, very cheap) access to the information superhighways for all. A student of mine told me that it does not cost anything, but he is not in charge of paying the university's budget; he did not have to buy the hardware and software he uses.

Just as the 19th century had its railroad barons, the late 20th and 21th centuries had and have their information superhighway barons, making millions of

dollars out of high technology — hardware, software, and most importantly, fees.

Easy and free access is a public relations slogan. Access still depends on availability of equipment, connections and networks which are not necessarily cheap or easy for everybody. The concept of easy and free access assumes the prior availability and understanding of the supporting technology.

# The promise was of easy and free access to the information superhighways for all.

Will all the world's information be accessible? Of course not. This is another marketing slogan.

The superhighways will convey only information from those computers linked to the system — if you can find it because the internet is chaotic. Other information will not be easily accessible. On the other hand, whatever information is on the highway can hardly be protected any more.

Copyright does not count, and intellectual theft has become increasingly widespread and can hardly be punished. Who is enforcing the laws? Who is heaping up riches [3]?

Is it really necessary for everybody to participate in the information society? It is claimed that if you do not become a member, you will be isolated. And, yes — in the meantime you will be. Banking, long-distance (or even short-distance) telephone calls, picture taking ... all of this is done on smartphones today.

However, there is another point of view: you become isolated as a member of the information society because you start living in an artificial world fenced in by computers. In other words, you degenerate into data autism. This leads to the next potential problem of dependency and habit, whereby the user becomes

options or alternatives are no longer considered.

Given easy and free access, is the point going to be reached where people only communicate through computer networks?

In 1995 the question arose: Will, for example, congresses and other scientific meetings become obsolete? Users of the superhighways are able to order tickets for travel and entertainment from home, but will there really be any need for tickets? From their computers, users can connect to wherever they want to go to and to whatever they want to hear or see.

The Covid pandemic taught us to introduce hybrid conferences or smaller, really scientific meetings. Meanwhile we rushed into the age of video-sharing platforms such as Zoom and Skype. It's feasible to switch from an onsite to an online meeting format and still meet most of the goals of a conventional medical conference, but to do so is challenging, the European Society of Radiology conceded [4]:

"Many of the necessary techniques are well established. Recording and streaming of conference sessions for later on-demand viewing has been offered by some societies (including the ESR) for some years. Live webinars are common educational tools. However, a full congress is a more complex proposition, involving a variety of session types, aimed at diverse types of attendees, with many different forms of interaction between speakers and delegates."

Another questions was: Will books or the printed media in general disappear, as some people predict? Will all scientific information be provided through the computer? We found out: no. Books might be better suited [5].

Incidentally, articles in printed journals published 10, 20, or 100 years ago can easily be read, but can a computer access and decipher diskettes that are 10 years old? Probably not, because reading them is as difficult as deciphering the Dead Sea scrolls.

Another point often overlooked is that the information society is based on permanent change. What was taken for granted vesterday will change today. The high-technology wonderland needs permanent change to earn money, and it is big business. It does not create new thoughts or new mental results, but it

so used to or dependent on the technology that the offers solutions for new vehicles to transport, transform and store information. These vehicles are consumer goods that will be obsolete in five years.

> The possible drawbacks must be kept in mind. We must do this for our own good and to keep alive the different and independent cultures that are the backbones of our civilization.

> Thirty years later: Is life easier now? I don't know. Is it less complicated? Oh, no. Is it cheaper? Definitely not.

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# Follow-up - Columns Readers Liked

# Politically correct scientific publications

## Peter A. Rinck





ublishing many papers is good for your curriculum vitae, which hopefully will finally contribute to your personal fame and fortune. Even better for your standing in an academic society, however, is being editor or co-editor of one or more journals.

Theoretically, when you are the editor, you should be able to take responsibility for the contents of your journal. But like authors, editors come in two types: those taking their job seriously and those seriously taken by their job. The first ones spend days and nights checking their authors' manuscripts and arranging solid peer reviews that are the litmus test for the authenticity of research. The latter type of editor also cares, but accepts brief and hurried reviews, which is reflected by the quality of the journal.

Some editors consider their job in the same way politicians see their profession: "I have reached the peak of my glory, now I can relax."

This, however, should not be the case. Being an editor involves being a leader. It implies taking responsibility, demonstrating courage, and making decisions based on an independent point of view, not only about the selection of what should be published but also about how it should be published. Being an editor is not a part-time job.

Editors should have the last say in what is published. A strong editor can stop the abuse of the system and of the language. Of course, there are many obstacles for editors: Friends want their papers published, the industry wants papers published, the editor does not want to offend certain academic circles by rejecting their papers — and the publisher wants to make money. Again, being an editor is like being a politician, but from an ethical point of view, editors should be better.

Unfortunately a number of publishers such as Elsevier, Springer and Wiley have fired the scientific editors of a number of their journals and put in puppets to save money; this is one of the reasons why the

quality of most "scientific" journals is in freefall. Fake or senseless papers fill the majority of journals; for the publishers quantity is important — they earn billions through state, i.e. taxpayers', subsidies.

A scientific paper should be written in an easily readable, self-explanatory style, with short sentences — and it should be reproducible.

Many authors try to write their scientific papers in politically correct language so as not to offend certain readers, for instance those people who have sponsored the research. A paper written in this way is not necessarily a well written paper or a good paper. Political correctness often deviates into the absurd and nonsensical. Such articles bother and offend me.

In the United States it is politically correct to describe a person with white skin color as a Caucasian, a black person as an African American, and a Latin American as a Hispanic. Most Europeans are white (or somewhere between pinkish and brownish), but in such a paper would you describe a black Frenchman as Afro-European?

Every time I read or hear the term "Caucasian" I imagine a member of the mountain tribes, stout, bearded, on horseback, riding on the slopes of the Elbrus. I do not imagine a white Anglo-Saxon Protestant in his Chevrolet (politically correct: 'in his or her' Chevrolet).

It sounds rather strange that Europeans, contributing scientific papers on clinical studies to U.S. journals, refer to their patients as Caucasians which in the United States is the political correct replacement for "Aryan", a term coined by the Compte de Gobineau, which was later turned into the infamous racial political theory of Houston Stewart Chamberlain and the followers of Adolf Hitler.

race" or, better, "European geographical race". By the way, there is no racial, but rather a linguistic background in these terms — which is usually unknown to the users.

These examples are some of the most poignant illustrations of aberrant language in scientific publications. You find them as often in papers written by native English speakers as by authors for whom English is a second language.

If a paper submitted to a scientific journal is written in rudimentary English and looks as if a termite has bitten the letters into the paper because the authors do not have access to a Laser printer, the likelihood that it will be rejected is far higher than a paper submitted in excellent English printed flawlessly.

Contents are of minor importance.

Many run-of-the-mill articles published in scientific journals and books use a peculiar, yet characteristic language and narrative. You have to learn how to read between the lines to understand what has really been done and is being described.

The following is an abridged prototype paper. The real meaning of the phrases in the paper is given in italics. Authors of papers like this usually follow the motto: "Stealing from one source is plagiarism, while stealing from many is research."

#### MR Imaging of the Ear Drums

by Ink Blot, Carl Murks, and Joe Shlabotnik

**Introduction.** For a long time it has been known that MR imaging is of advantage in ear diagnostics, but to our knowledge, no one has performed MR studies of the ear drums yet (= we did not look up the original references nor any other reference). It is believed that (= our boss believes) MR imaging of the ear drums is a highly significant diagnostic area for exploratory studies (= we all know it is a totally useless topic). In the following paper we present a pivotal study performed at our institution.

Materials and Methods. We acquired T1weighted images of 6 ears (= all three co-authors were examined, each of them having two ears; say no more about what was done).

A more appropriate term is "Caucasoid geographical **Results.** Three of the imaging experiments were chosen for detailed study (= the results of the others were too bad and did not make any sense). The figures show typical results (= the results fitting best our ideas are shown). Statistics were performed with the Sidecar-Tripleburger test (= we opened a book on statistics randomly and choose the first statistical procedure we came across). The statistical results are correct within an order of magnitude (= they are completely wrong but hopefully the journal editor and the reviewers are too lazy or incompetent to check).

> **Discussion.** The aim of the study was to image the ear drums. It is generally believed that such MR imaging procedures have a great future (= in the meantime our boss has convinced a friend about the value of his idea, so there are already two who believe in it). While it was not possible to provide definite answers to our scientific questions (= the experiment was unsuccessful, but we still hope to get it published) the results correlated closely to visual findings (= we looked into the ears and were able to distinguish clean from dirty ones). The results are of great theoretical and practical importance (= they are interesting to our superior and the public relations agency of a manufacturer of cotton ear-cleaners).

> A careful analysis of the obtainable data reveals a definite trend (= we lost our notes and erased some of the data files. Anyhow these data are practically meaningless). A statistically oriented projection of the significance of these findings leads us to the conclusions that a task force is needed to cope with the results (= even a wild guess has not brought any solution and we do not know what else to do with the results). It is clear that much additional work will be required before a complete understanding of the phenomenon will be possible (= we do not understand anything we saw even though somebody else tried to explain the results to us). It is hoped that this study will stimulate further investigation in this field (= this is a lousy paper, but so are all others in this miserable field; we hope it will be published and we can apply for some research grants).

> We are aware of the far-reaching implications of this study for the practice of ear, nose, and throat medicine (= our boss will get a lot of money from the public relations agency of cotton ear-cleaners, which now has scientific pictures of dirty ears before and after cleaning).

**Acknowledgments.** We are grateful to Elli Pirelli for assistance and Ein Stein for valuable discussion (= *Pirelli is the technician who did the work and Stein explained to us what to do with the results*).

#### Good science writing

A good scientific paper should be written in an easily readable, self-explanatory style with short sentences. If and when you are a well-established scientist, you can start writing prose. The editor of the journal to which you submit your paper will not dare to reject it. Then scientific papers sound like this:

"Water in biological systems is often regarded as the broth of life, solvent for the macromolecules of the cytoplasm, and space-filler for the nucleus. Tissue cells are bathed in extracellular water, through which small molecules ... shuttle between cells and the grand circulation."

It is far more pleasant to read such a paper because it is easy reading and entertaining. If the contents are up to writing style, then such a paper is perfect because it combines good science with good penmanship. But there are few good scientists and few good writers in this world. The combination of a good scientist and a good writer in one person is even rarer. In many instances papers in the style in the last paragraph decline into prose that is too exuberant and flowery. The reader should not giggle when studying a scientific paper:

"Ours is a dynamic view of water in which water molecules move freely throughout their environment. ... Much work remains to be done, of course."

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# Tablets versus textbooks • Back to the established roots

### Peter A. Rinck



rinted medical textbooks are dead, e-publishing is the future. There seemed to be a general unison: Instead of primers and schoolbooks – and textbooks in science and medicine – computers screens are better, more flexible and cheaper. But after more than two decades of step-by-step implementation of this speculative notion, the school board of one of the countries most dedicated to digital teaching made a U-turn. The Swedish National Agency for Education backs away from screens in schools.

We had come to the same conclusion earlier: The electronic format is not always best for teaching and learning. Certain kinds of publications are appropriate for e-publications, but others need to be in print.

The starting point. To use a real-life example, let me tell you about our very successful basic text-book on MRI. Since the mid-1980s, new print editions were published every four or five years. Five years ago, the sixth edition was turned into an elearning textbook. One and a half years of demanding work resulted in a new website with about 320 pages and several hundred figures and animations. Meanwhile, two more electronic editions have followed. The print edition was translated into six languages, the electronic version was translated into Spanish and Chinese.

The bookshop price of a copy of the last English print version was around 120 euros. The electronic version is free because we believed that a free and easily accessible textbook would be beneficial for everybody in the field [1].

In the foreword to the e-book I wrote:

"We like books – printed on paper, if possible with a beautiful hardcover binding. Thus, putting one of the standard textbooks on the Internet was a challenge for us. We hope that the looks of the real textbook have not been lost completely – and, at the same time, that the advantages of e-learning bear fruit."

The brave new world of e-publishing. The reasons for the change from print to web were the commonly heard arguments: e-books and texts are cheaper, faster, easier to make and environmentally better. TRTF sponsored the project. If one has an existing infrastructure to create educational material, as we had, you also need neither a publisher nor distributors — both are very costly.

Digital publications of all kinds are taken for granted to be the concept of the future, printed books are considered outdated. However, after these last years I started wondering. Although layout-out and printing processes have also gone through rapid changes, the final result, the printed book, is still the same.

Creating an e-textbook in Hypertext Markup Language (HTML) involves far more effort, time, and money than a printed book. Besides, hard- and software for electronic publications change every year; it's a typical unstable throwaway society technology and will remain so. Do the advantages of the final product justify a close to seven digit project budget?

An attempt to come to terms with the topic was published some time ago in the monthly Scientific American [2], and an in-depth review of printed versus electronic books was written by Valerie A. Moore as a master paper in library science in 2014 [3].

# What we learned the hard way was partly thrilling, partly disillusioning.

**The lessons.** What we learned the hard way was partly thrilling, partly disillusioning. First, contents and layout of a printed textbook have to be adapted for e-learning. To facilitate reading from a computer screen, sentences have to be shortened and additional paragraphs introduced. E-publications are not necessarily for simpler minds, but they are processed in different parts of the brain. Figures have to be newly fitted, scrolling pages should be kept at a minimum.

be added, but they again are costly.

Feedback rapidly made clear what others had already described in recent years: Even with high-resolution screens, reading from a tablet is draining and contents are forgotten faster.

Reading from a screen tires one's eyes; headache, muscle tension of the neck and back, and blurred vision are typical complaints of people spending a long time in front of any screen. Users seem to screen the text like looking at a picture, but don't read it in depth. Now and then they move to other programs, reading e-mails or newspapers or playing games. Their concentration is split, not focused.

**Using and owning.** The personal relationships to books and e-books are different. Physically, books on computer screens are temporary and bodiless. Readers might not be able to recreate the text five years from now or even tomorrow on their machines, nor on a different machine. Even on the same computer, text and figures change according to the software used. One doesn't own a textbook on computer; usually one pays for a license to read; even if the files are downloaded they are here today, yet perhaps gone tomorrow. If the vehicle necessary to read the textbook breaks or runs out of electricity, the contents and notes are gone.

Books in their traditional paper style don't change, the text doesn't disappear and doesn't require a complicated carrier - and they can easily be archived. Archiving computer files for more than a few years is difficult and expensive. Therefore a whole industry has developed around data archiving.

**Differences to take into account.** The human brain processes and reacts differently to printed books and to text on screens. Although the text and figures of a printed book and an e-book might be the same, the reader does not extract the same information from them.

It seems as if long texts are easier navigable when published in books. As a side effect, books allow readers to find a physical satisfaction, both hapticly and tangibly, sometimes even in smells and the general craftsmanship of books. More so, books have an easier topography; their mapping is clearer for the human mind. One can go forward or backward just by flipping some pages. People easily lose the over-

On the other hand, animations and short videos can view of the entire book when it is turned into an ebook.

> Which medium is best? There is a multitude of studies from all over the world examining and highlighting people's likes, dislikes, and objections to certain aspects of reading texts from computer screens. Of course, most of the responses researchers got were subjective, for example that many people consider reading and learning from a book as more serious than reading a text on an e-reader, tablet, or regular laptop or desktop. However, can one really play one medium off against another?

Valerie A. Moore summarizes in her thesis:

"Some readers seemed more likely to trust information they read in print than in electronic form. Print's immutability and material stability helped reassure them that the information could not be altered surreptitiously and would be accessible in the future.

"Print was preferred for reference materials or 'heavier' reading by some as well, primarily due to its physical structure that allowed readers to flip back and forth through the pages ... The focus inherent in print's self-contained pages, too, facilitated learning.

"For others, however, the immediate access to supplementary information enhanced their ability to learn, so they preferred digital text for serious reading."

In this context, however, it is interesting to observe that paper use has increased nearly linearly during the last thirty years. To not lose the information, people print notes, e-mails, protocols, all kinds of text they see on their screen. The 'paperless office' has turned into a fairy tale.

Similarly, sales of printed book versions of both fiction and non-fiction books are said to rise after people have read parts of e-books.

**Personal conclusions.** Which consequences did we draw from our observations? Certain kinds of publications seem to be appropriate for e-publications, others rather for printed publications. E-publishing is popular and fashionable. Yet, it's questionable whether it fulfills its declared objective in teaching and learning. What is and will be the best vehicle

for certain reading and teaching/learning applications remains unclear at present. The professor/teacher plus textbook combination is proven over centuries, in particular if both professor and book are good.

For the very limited sector of scientific textbooks it is clear that people don't read them entirely on screen to acquire fundamentals of a certain topic. After following more than half a million page clicks over a continuous period of time, I clearly understand that, in this case a magnetic resonance e-textbook – and most likely other e-textbooks too – are not used for in depth learning.

The Swedish government's reaction. Swedish Minister of Schools Lotta Edholm abandoned the strategy of the Swedish National Agency for Education (Skolverket) that favors the pursuit of digital technology. In December 2022 she wrote in the newspaper *Expressen* [4]:

"Sweden's tomorrow is determined by the school students' everyday life. The government wants it to be filled with reading and knowledge — not screen time. There has been an uncritical attitude to digitization; it was considered good regardless of content ... the Swedish government wants to see more school books instead ... There are several benefits to printed texts. When reading digital, the reader spends less time just reading. The students went through the text faster at the expense of understanding what they had just read. Those who had read printed text could better reproduce main points, remembered more parts and generally showed a better reading comprehension.

"At the same time, every third teacher states that they cannot buy the analog teaching materials they need in their teaching ... as a consequence, teachers spend valuable time printing up teaching materials. Time that could go into preparing, implementing and finishing teaching."

On 15 May 2023 she added, according to the Paris paper *Le Monde* [5]:

"The goal is to guarantee one book per student and per subject. This ratio is no longer the case today. For the past fifteen years or so, screens have gradually replaced textbooks in Sweden. From middle school onwards, students spend an increasing amount of time in front of computers, usually provided by the school. No matter the subject, they have to connect to the internet in order to search for information online, write an assignment or revise for their courses."

"It was an (expensive) experiment ... The omnipresence of screens also means that students have lost the habit of reading, ... and they rarely or never wrote by hand."

This was our conclusion too. We returned to an updated printed version of the magnetic resonance textbook, parallel to the existing e-version. It was also a question of price, both in production and for the reader, as well as of readers' reactions and feedback. An update of the e-book edition on the web was rejected despite the more than 1.2 million clicks; but it's too much work, too expensive, and the reader feed-back was zero (except for a single "thank you" from Ecuador).

Offprints of selected chapters of the latest printed edition can be downloaded free of charge from this webpage: https://trtf.eu/textbook.htm

To give this column an electronic touch at the end: There is a beautifully Spanish-made video about books [6]. It's short. You should watch it.

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