

Open access: effects and consequences in the management of scientific discourse

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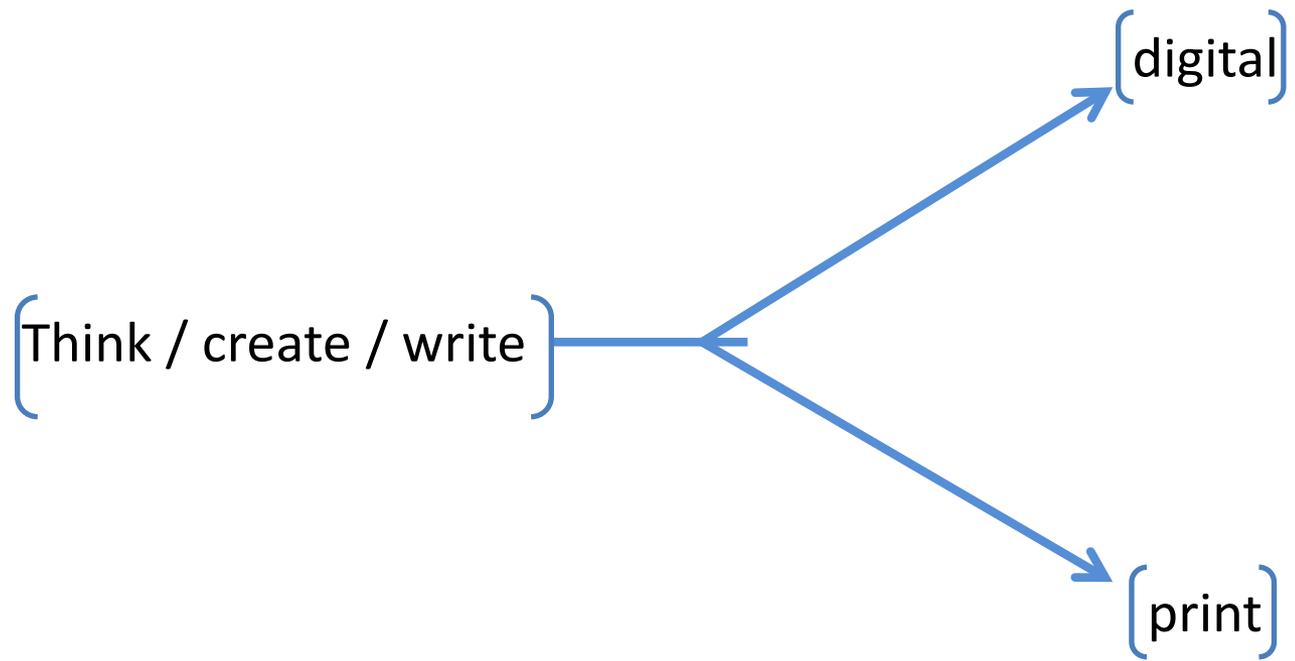


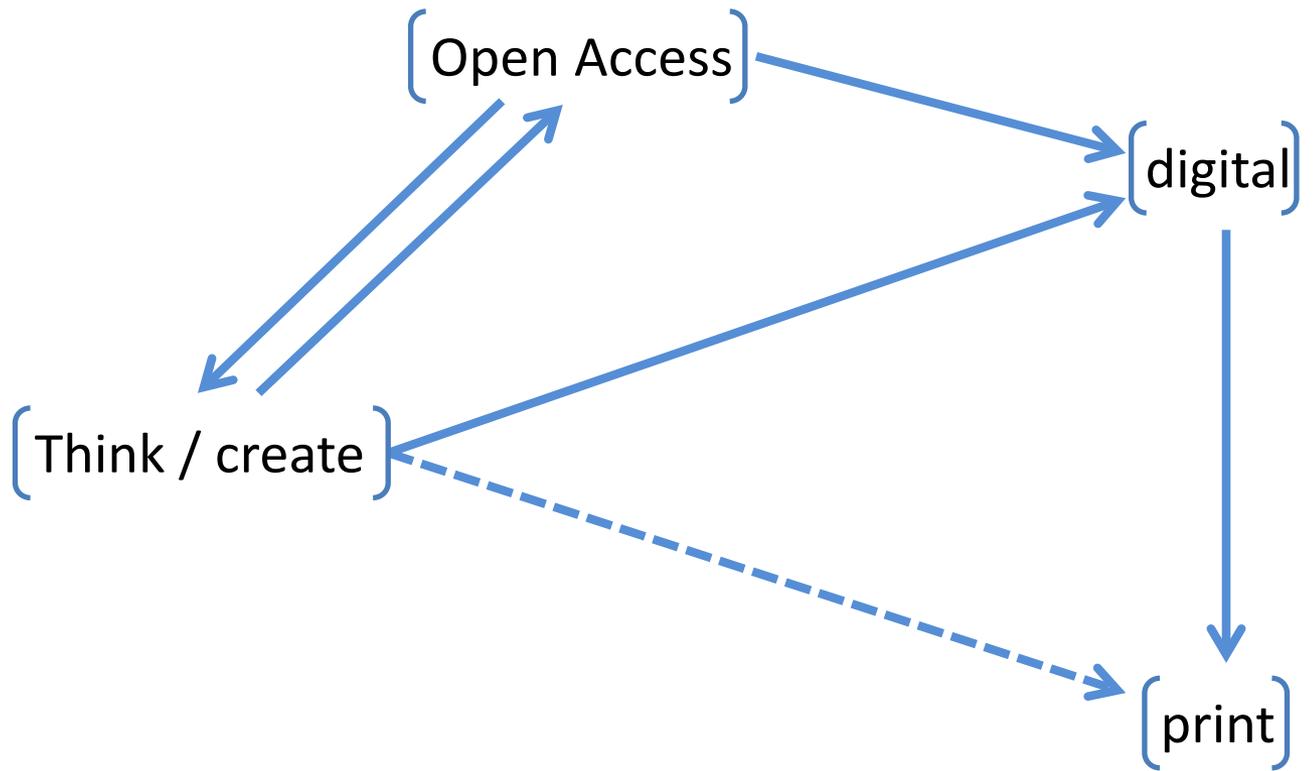
The Berlin Declaration

The Internet has fundamentally changed the practical and economic realities of distributing scientific knowledge and cultural heritage. For the first time ever, the Internet now offers the chance to constitute a global and interactive representation of human knowledge, including cultural heritage and the guarantee of worldwide access.

Our mission of disseminating knowledge is only half complete if the information is not made widely and readily available to society. New possibilities of knowledge dissemination not only through the classical form but also and increasingly through the **open access paradigm** via the Internet have to be supported. We define open access as a **comprehensive source of human knowledge and cultural heritage** that has been approved by the scientific community.

In order to realize the vision of a **global and accessible representation of knowledge**, the future Web has to be sustainable, interactive, and transparent. Content and software tools must be **openly accessible and compatible**.





E-BOOK LAYERS

Core text	Concise account of the subject, available perhaps in paperback
Elaboration of specific aspects	Expanded versions of different aspects of the argument, not arranged sequentially as in a narrative, but rather as self-contained units that feed into the core text
Documentation	Possibly of different kinds, each set off by interpretative essays
Theoretical or historiographical layer	With selections from previous scholarship and discussions of them
Teaching modules	Pedagogic layer consisting of suggestions for classroom discussion and a model syllabus
Debate	Readers' reports, exchanges between the author and the editor, and letters from readers, who could provide a growing corpus of commentary as the book made its way through different groups of readers

Overview 6-5: History E-book layers according to Darnton 1999

Science Paradigms

- Thousand years ago: science was empirical describing natural phenomena
- Last few hundred years: theoretical branch using models, generalizations
- Last few decades: a computational branch simulating complex phenomena
- Today: data exploration (eScience), unify theory, experiment, and simulation
 - Data captured by instruments or generated by simulator
 - Processed by software
 - Information/knowledge stored in computer
 - Scientist analyzes database / files using data management and statistics

From: Jim Gray on eScience: A Transformed Scientific Method
In: Tony Hey, Stewart Tansley, and Kristin Tolle, "The Fourth Paradigm. Data-intensive Scientific discovery", Redmond, Washington, Microsoft Research, 2009 ,p. xxvi

Certain contributions to academic newsgroups and discussion lists may be counted as a new type of publication, too. This may be the case if two conditions are met: first, if the posting is more than an announcement or question, e.g. an elaborate answer or comment; and second, if the postings are archived. Steven Harnad coined the label “scholarly skywriting” (1990) for this, meaning

“all the [E-mail] interactions at the ‘pilot’ stage of inquiry – from informal brainstorming to participating in research symposia to circulating preprints for peer criticism before formally submitting them to an archival journal for peer review”.

There are many practical examples of this already. For instance, some active researchers participating in the newsgroup communication on cold fusion admittedly intended to do “E-mail science”, i.e. shaping and forming thoughts in an open discourse and eventually publish this as “co-authored by the newsgroup” (Lewenstein 1995, 136ff.). According to Lewenstein, contributors to the net discussion observed by him have indicated **“that they consider their use of CMC not just as an adjunct to traditional scientific communication but as a first step to recasting the entire structure of science”**. Lewenstein interprets this as “an intellectual commitment to changing the process by which information is exchanged and validated as knowledge” (ibid.).

Skywriting may eventually lead to a traditional publication. One example of this is the book edited by Okerson/O’Donnell (1995): most of the text was written in the course of an extended (nine months long) discussion in an E-list. The book exists as both a free E-book and a printed version under the auspices of ARL

(Nentwich. *Cyberscience*. 332-333)

In the face of the ludicrous status quo, it's no wonder that researchers are starting to turn to “Gold Open Access” publishing. Under this model, authors pay a publication fee, and the publisher makes the resulting article freely available to anyone and everyone. There are no subscriptions, and open-access publishers don't demand copyright. The taxpayers who fund research have full access, and anyone can do whatever they like with the published papers, including text-mining. The benefits to research, commerce and society are enormous.

Since open access is a manifestly superior model, we would expect it to have become ubiquitous. But depending on our definition of open access, it seems that only between 5 and 8 percent of scholarly articles are published under this model. Why is this?

It's certainly not due to cost. To publish in the reputable open-access journal PLoS ONE costs a publication fee of \$1,350. Other open-access journals average a bit less, around \$906. To publish in an Elsevier journal, on the other hand, appears to cost some \$10,500. In 2011, 78 percent of Elsevier's total revenue, or £1,605 million, was contributed by journal subscriptions. In the same year, Elsevier published 240,000 articles, making the average cost per article some £6,689, or about \$10,500 US. So to publish behind a paywall with Elsevier—and make your work available to only some other researchers and no members of the public—costs nearly eight times more than publishing openly with PLoS. It's apparent that we are not getting value for money from the traditional academic publishers.

And so, the \$10,500 question: why do we keep publishing with subscription-based journals?

M. P. Taylor in “The Scientist”, March 19, 2012

Opinion: Academic Publishing is Broken.