Current Developments in Academic Journals

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TOPIC 1: ROLE OF THE JOURNAL

Will researchers still communicate and be evaluated by journal publication?
Generating knowledge

Ideas/beliefs → epistemological engine → justification → truth → knowledge
Generating knowledge

Results/observations

Act of evaluated publication

Knowledge *pro tempore*

Peer review

Scientific method
AUTHOR MODE

- To be **seen** to report an idea **first**
- To feel **secure** in communicating that idea
- [For empirical subjects] To **persuade** readers that their results are general and arise from enactment of a canonical (scientific) method
- To have their claim **accepted** by peers
- To **report** their idea to the **right audience**
- To get **recognition** for their idea
- To have a permanent **public record** of their work
Fundamental Needs of Researchers (II)

READER MODE

• To **identify** relevant content
• To **select** based on **trust** and **authority**
• To **locate** and **consume** it
• To **cite** it
• To be sure it is **final** and **permanent**
Functions of the journal à la Oldenburg
• Date stamping or priority via registration
• Quality stamping (certification) through peer review
• Recording the final, definitive, authorised versions of papers and archiving them
• Dissemination to targeted scholarly audience
• [Added later] For readers, search and navigation – Achieved via creation and then management of the “journal brand”
Evidence of researcher needs

Data from 36,188 Authors;
0 = unimportant
10 = very important

Source: Elsevier Author Feedback Programme
A Letter of Mr. Isaac Newton, Professor of the Mathematicks in the University of Cambridge; containing his New Theory about Light and Colors: sent by the Author to the Publisher from Cambridge, Febr. 6. 1671, in order to be communicated to the R. Society.

SIR,

To perform my late promise to you, I shall without further ceremony acquaint you, that in the beginning of the Year 1666 (at which time I applied my self to the grinding of Optick glasses of other figures than Spherical) I procured me a Triangular glasse-Prisme, to try therewith the celebrated Phenomena of Colours.
C\textsubscript{60}: Buckminsterfullerene

& R. E. Smalley

Rice Quantum Institute and Departments of Chemistry and Electrical Engineering, Rice University, Houston, Texas 77251, USA

During experiments aimed at understanding the mechanisms by which long-chain carbon molecules are formed in interstellar space and circumstellar shells\textsuperscript{1}, graphite has been vaporized by laser irradiation, producing a remarkably stable cluster consisting of 60 carbon atoms. Concerning the question of what kind of 60

Received 13 September; accepted 18 October 1985.

P(i-PrNCH₂CH₂)₃N: an efficient catalyst for TMS-1,3-dithiane addition to aldehydes

Kuldeep Wadhwa and John G. Verkade

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Abstract

Herein we report the use of commercially available P(i-PrNCH₂CH₂)₃N (1a) as an efficient catalyst for 2-trimethylsilyl-1,3-dithiane (TMS-dithiane) addition to aldehydes at room temperature. The catalyst loading required for these reactions (6 mol %) is the lowest recorded in the literature, and the majority of the reaction times for this transformation are the shortest thus far reported. A variety of functional groups are tolerated on the aryl aldehyde substrates.

Graphical abstract
# Publishing functions and vehicles

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<tr>
<th></th>
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<th>Registration</th>
<th>Certification</th>
<th>Dissemination</th>
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0 = done by document NOT vehicle  
X = done by vehicle
Functional breakdown?

Registration
Ownership ⇒ co-authorship levels

Certification
Internal review ⇒ co-authorship levels
Peer review ⇒ practice per discipline

Dissemination
Disclosure ⇒ access, visibility to search

Archive
Permanence ⇒ organisation & technology
Registration/Certification & Co-author Levels

High Energy Physics

Pre-print or self-archiving culture?

Ave Co-Authorship Level

Unimportant

Crucial

Traditional journal culture

Registration

Certification

Level of Co-authorship

1

100s

Level 4
Co-authorship levels

From: Mabe & Amin ASLIB Proc. 54(3).149-175, 2002

Authorships per Paper

Authorships per Unique Author

Papers per Unique Author

Data from ISI Science Citation Index
Certification Breakdown by Discipline

Subject variation
Small to Medium Scale Experimental/Empirical

Certification function
Very strong

Very weak

Peer review as methodological and quality filter
Many investigators
Co-authorship low

MOLECULAR & ATOMIC & SOLID STATE PHYSICS
CHEMISTRY
LIFE SCIENCES
MATERIALS SCIENCE
ENGINEERING
GEOLOGY

THEORETICAL PHYSICS

MATHS
COMPUTER SCIENCE

High
Co-authorship high

THEORETICAL
PHYSICS

High
Co-authorship high

Small fields where quality of each researchers’ work is known personally to peers

Certification function

STM

THEORETICAL
PHYSICS
Decoupling from the Journal

Elsevier/NOP 2005 Core Trends Study (N=6344)

I always search authors websites for the full article

- AGREE
  - Econ 50%
  - Comp sci 33%
  - Maths 30%

- DISAGREE
  - 5%
  - 21%
  - 22%
  - 42%
  - 11%

I place an early version on my website

- Yes
  - Comp sci 33%
  - Maths 22%
  - Econ 21%

- No
  - 14%
  - 86%

I place a final version on my website

- Comp sci 54%
- Maths 44%
- Econ 42%
- Grad students 33%
Will tools develop that make the current journal obsolete?
The internet changes everything...

- “Here, on the edge of the twenty-first century, a fundamental new rule of business is that the Internet changes everything”
  - Bill Gates *Business @ The Speed of Thought*, 1999

- “The Internet changes everything!” They say.
Digital Maturity

- 6 August 1991 – world wide web goes live
- 22 April 1993 – Mosaic launched
- 13 October 1994 – Netscape
- August 1995 – Internet Explorer

- 1992 first www journal – Online Journal of Current Clinical Trials
- 1993/94 handful of www journals
- 1991-1995 TULIP large-scale bit image trial
- 1996 onwards — e journal platforms: Ideal, ScienceDirect, Synergy, Interscience etc.

The www is 24 in 2015, www journals are just 22 and e platforms are teenagers (19)
Motivations for Publishing


Disseminate results: 57%
Further my career: 27%
Future funding: 40%
Recognition: 15%
Establish precedence: 2%
Motivations for Publishing


2005. Elsevier/NOP study
What would you say are the two most important motivations for publishing?  Base: (6344)
Challenges of Web 2.0

- User provided content undermining traditional information roles
  - Free vs paid
  - Democracy vs quality
  - Removal of gatekeepers
- Authority systems destroyed
  - Newspaper correspondents vs bloggers
  - Expert analysis vs amateur opinion
- Value added paid services undermined/fail
  - Encyclopedia Britannica vs Wikipedia
  - Repositories vs journals?
  [See Andrew Keen *The Cult of the Amateur* for more]
New communication possibilities

- Informal research collaborations
- Semi-formal sharing of information and practice
- Opinion leaders engaging debate
- Collaborative authoring

New tools for old purposes

- Internet relay chat
- Internet forums
- Blogs
- Wikis

Unclear how these might be monetized
Information Ecology

- **Communication Dimensionality**
  - Mode
    - 1:1, 1:many, many:many
  - Directionality
    - unidirectional, interactive
  - Delivery regime
    - oral, written
  - Temporality
    - Live or recorded
  - Register:
    - private, public, informal, formal
  - Enhancement:
    - local, at a distance
Information Ecology: An Example

• Case of an oral lecture (like this!)
  – Mode: one-to-many
  – Directionality: unidirectional (except for Q&A)
  – Delivery regime: oral
  – Temporality: live
  – Register: public, formal
  – Enhancement: in the lecture hall none
    • but technology allows development to “at a distance”
      – broadcast, but reduced directionality
      – webcast, no reduced directionality
<table>
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<th>Directionality</th>
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<td>One-to-many</td>
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<td>Many-to-many</td>
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TOPIC 3: BUSINESS MODELS

Will there be any viable business models to sustain publishing operations with net returns?
Business Model Options

• Supply or demand-side user payment
  1. Authors pay
  2. Authors’ institutions pay
  3. Authors’ granting bodies pay
  4. Readers pay
  5. Readers’ agents (library) pay
  6. National authorities pay

• Third party tolls and tariffs
  – Advertising
  – Telecommunication access charges

• Sponsorship
  – Charities, foundations, companies, government

• Rental or timeshare: DeepDyve
Open Access

• Definition
  – Availability of electronic content to readers without any payment

• Variations
  – *What* is made free
  – *When* and *where* it is made free
  – *How* it is made free (business model)
Stages of Publication

Stage One
Primary Outputs of Research:
• raw data
• Draft for submission to a journal

Stage Two
Author’s draft incorporating peer review enhancements and imprimatur of journal

Stage Three
Final published article on journal website: version of record with copyediting, typesetting, full citability, cross-referencing, interlinking with other articles, supplementary data
# Types of Open Access

## Gold OA:
- No payment to read – full journal
- Final published article
- Often with author payment
- “author pays” model

## Hybrid OA:
- No payment to read – select articles
- Final published article
- Often with author payment
- “sponsored articles,” “author choice,” “open choice,” etc.

## Green OA:
- “self-archiving,” often after delay
- Article versions varies but often accepted author manuscripts
- the “nobody pays” model

## Delayed access (embargo):
- Free access on journal platform after delay

## Reverse moving wall:
- Free access on journal platform for initial period
China: May 2014, two Chinese funders published their Open Access mandate

**Chinese Academy of Sciences (CAS)**
- Requires its researchers and graduate students to deposit final, peer-reviewed manuscripts of research articles into the open access repositories of their respective institutes within **12 months of their official publication in academic journals**;
- CAS support publishing in OA journals with reasonable APC’s *

**National Natural Science Foundation of China (NSFC)**
- Requires researchers to deposit final, peer-reviewed manuscripts of research articles into NSFC repository within **12 months of their official publication**;
- To build NSFC institutional repository.

Japan

**Japan Science and Technology Agency (JST)**
April 2013, JST announced a policy of Open Access for research outputs funded by JST
- JST will implement this open accessibility only with the explicit consent of the journal the researcher has published in and within the embargo time period of the institutional repository, and will clearly state the above in the application guidelines **
- Author final version
- Publishing in Open Access journals is allowed

**Japan Society for the Promotion of Science (JSPS)**
JSPS does not have an own OA policy;

*Upon request STM learned that CAS will not fund APC’s in hybrid journals because „they think it is complicated/difficult to offset the gold payment from hybrid journals subscriptions“.*
STM’s position on sustainable access

STM issued a position on sustainable Open Access; signed by over 45 STM + members

http://www.stm-assoc.org/publishers-support-sustainable-open-access/

Publishers are committed to the widest possible dissemination of and access to the content they publish. We support any and all sustainable models of access that ensure the integrity and permanence of the scholarly record. Such options include 'gold' open access, … [which] provides one approach toward our shared goal of expanding access to peer-reviewed scientific works and maximizing the value and reuse of the results of scientific research.

We believe that authors should be able to publish in the journal of their choice, where publication will have the greatest potential to advance their field. Institutions and funders have a key role to play in ensuring that public access policies allow for funding of peer reviewed publication and publishing services in whatever journal that an author chooses. Publishers look forward to working with all stakeholders to achieve this goal and to advance scholarly communication.
TOPIC 4: ZEITGEIST

Will public (political) attitudes regarding the internet make publishing impossible?
Digital *is* Different!

**DOMAIN**

- **Documents**
  - Infinite reproducibility
  - Total changeability

- **Attitudes**
  - “*e = free*”
  - “*yours = mine*”
  - “*public funding = public access*”
  - “*(intellectual) property = theft*”

**CHALLENGES**

- Business models
- Copyright
- Authority/trust
- Copyright
- Business models
Conclusions

• Does journal publishing have a future?
  – **Scholarly behaviour** is remarkably unchanged
  – **Technology** has provided new tools, but these are new tools for old purposes
  – Some **business models** will work in the future but all depends on continuing respect for copyright and business conditions that make publishing economic

- **YES, probably...**
  - But altering in a few subjects
  - But affecting attitudes to information
  - Perhaps, but not if copyright removed and unfunded mandates allowed
"There will never be a mass market for motor cars — about 1,000 in Europe — because that is the limit on the number of chauffeurs available!" — Gottlieb Daimler, inventor of the gasoline-powered automobile, 1889
Questions?

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