RIN e-journals update

Ian Rowlands, David Nicholas, Peter Williams and David Brown
CIBER Group
University College London

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RIN e-journals update

Research questions

Research questions

How have researchers responded to the unprecedented levels and convenience of access to scholarly journals?

Has enhanced access to the literature led to greater productivity, research quality and other outcomes?

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Research design

top down

bottom up

database of UK university
indicators

deep log analysis of UK
university departments

Case study institutions

University of Aberdeen

Bangor University

University of Cambridge

University of Edinburgh

University of Manchester

Rothamsted Research

University of Strathclyde

University of Wales Swansea

University College London

Case study subjects

Chemistry and chemical engineering

Earth and environmental sciences

Economics and econometrics

History

Life sciences and agriculture

Physics

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Massive consumer acceptance and growth

UK universities have taken full advantage of the enhanced provision of e-journals over the past five years.

The graph opposite shows the number of full text article downloads (from all publishers). Downloads are indexed to 100 for the academic year 2003/04 for ease of comparison.

In just three years:

★ total use more than doubled

★ **... at a staggering compound annual growth rate (CAGR) of 21.7 per cent per annum**.

The growth in article downloads
n=67 UK universities

2003/04	2004/05	2005/06	2006/07
100	142	189	219
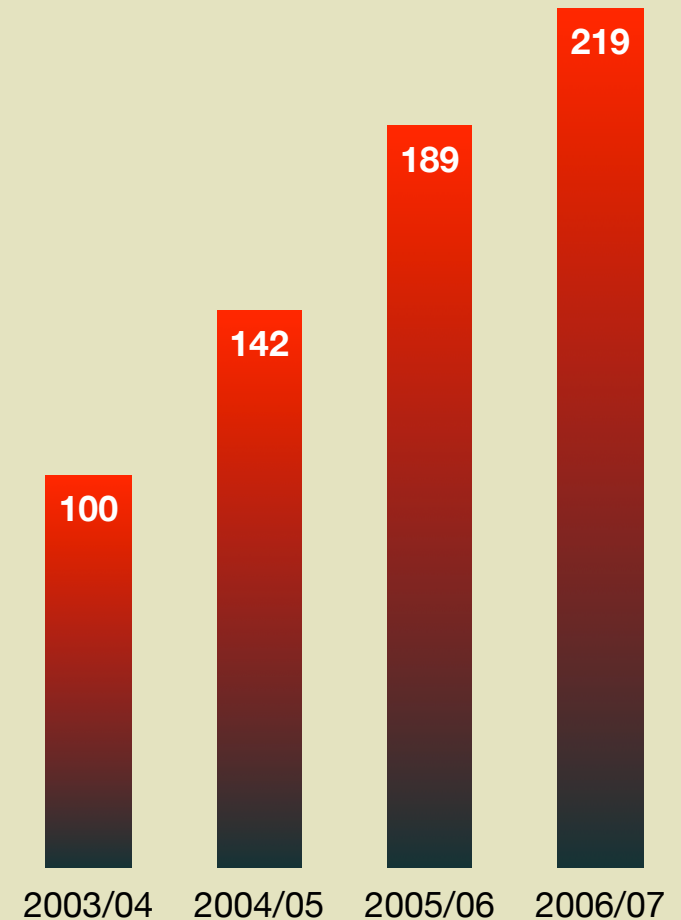
Source: Sconul / COUNTER 2008

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**Links between investment, use and `downstream' outcomes?**

This slide demonstrates a strong statistical associations between journal use and research outcomes.

The diagram plots numbers of article downloads (as recorded by institutions using the COUNTER standards) against PhD awards for 2006/07. The outer lines are 95 per cent confidence intervals.

The model shows a good fit with few outliers.

PhD awards and article downloads, 2006/07
n=112 UK universities

R Sq Linear = 0.649

UCL
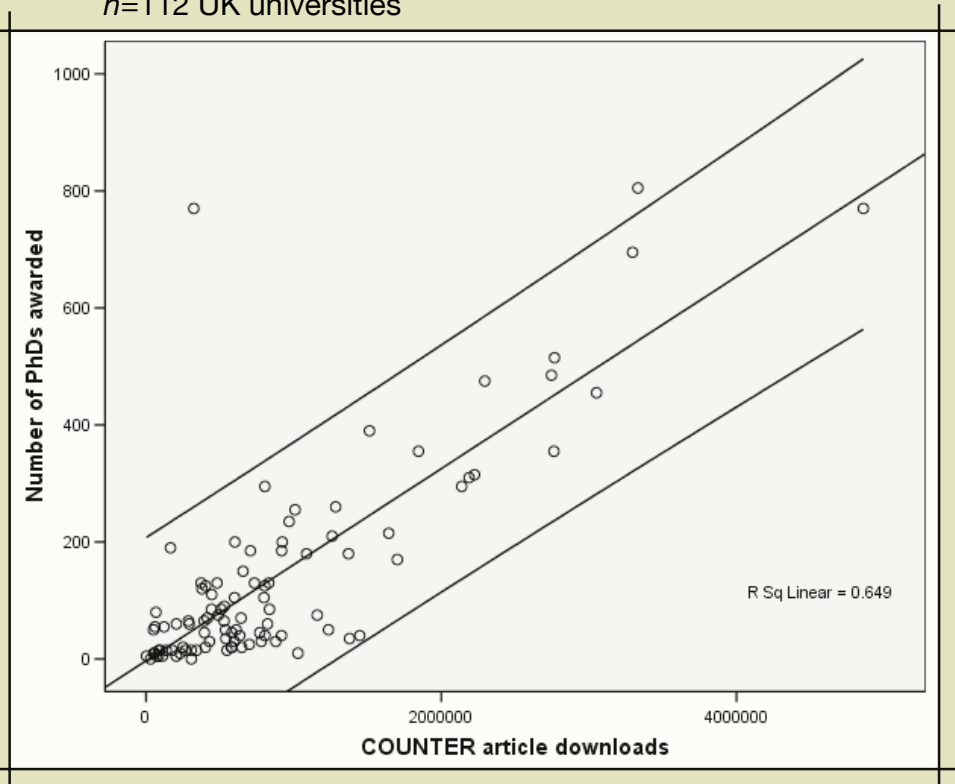
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Phase II interim findings

Researcher information behaviour

Researcher referencing behaviour

E-journals in teaching and learning

Further data modeling

Phase II: Research information behaviour

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★ very high levels of satisfaction with access to the journals literature.

★ at least 95 per cent of journal consumption is now in e-form, with hard copy used only as a last resort.

★ a widespread recognition that `nobody' reads `full text' any more, `power browsing' is mainstream.

★ Strong preference for generic gateway services such as PubMed and Web of Science rather than publisher platforms.

★ Google used to help generate ideas (serendipity) and to fill in gaps: it was felt that systematic reviews and journal articles often omit useful information, the genre is `too rigid'.

★ Wikipedia widely accepted as a valuable tool, especially for clarifying terminology across disciplines.

★ abstracts are still used to form relevance judgements, but many people prefer to scan the article rapidly, assessing relevance mainly in terms of methodology or terminology (need for structured abstracts?).

★ users have little idea how output from services such as Web of Science are ordered and are quite happy to browse through lists of 500 documents.

★ Journal brand is still a key quality marker and users actively avoid `inferior titles' and those articles that are poolrly written.

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Interview findings (*n*=60)

Scientists have always strived to avoid unnecessary reading. Like all researchers, they use indexing and citations as indicators of relevance, abstracts and literature reviews as surrogates for full papers, and social networks of colleagues and postgraduate students as personal alerting services. The aim is to move rapidly through the literature to assess and exploit content with as little actual reading as possible. As indexing, recommending, and navigation has become more sophisticated in the online environment, these strategic reading practices have intensified.

Allen H. Renear and Carole L. Palmer, Strategic reading, ontologies, and the future of scientific publishing, *Science,* 14 August 2009, pp 828-832.

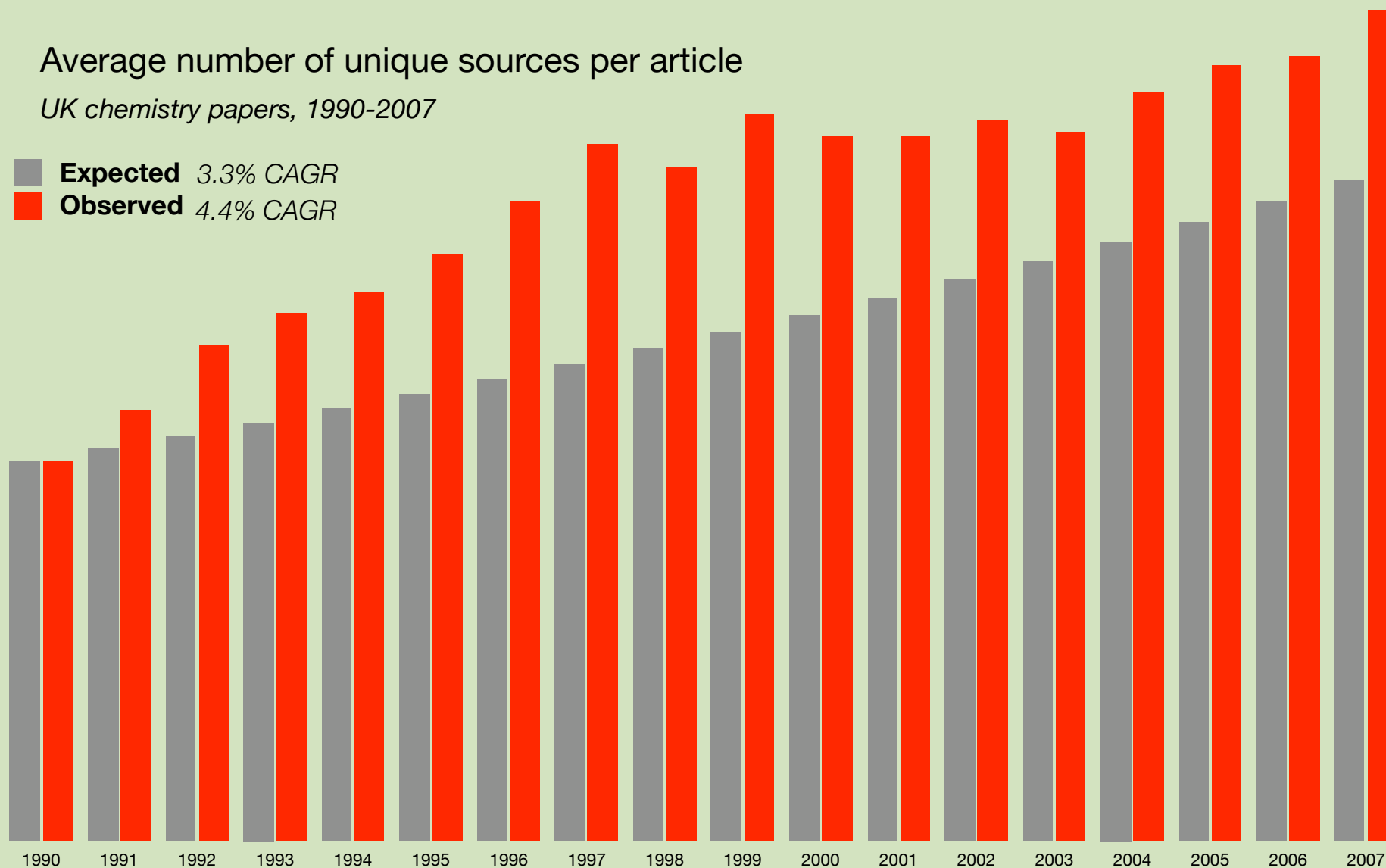# Phase II: Researcher referencing behaviour

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Referencing behaviour

Average number of unique sources per article

UK chemistry papers, 1990-2007

■ **Expected** *3.3% CAGR*
■ **Observed** *4.4% CAGR*

1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007

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Referencing behaviour

★ Authors are citing from more sources now than they did in 1990 and this effect is particularly marked in chemistry and in the earth and environmental sciences. This growth is occurring at a faster rate than that of the literature as a whole. This growth is stronger in the UK than for the world.

★ The age profile of references is becoming older.

As a result, researchers are covering the literature in greater breadth and depth, possibly a result of greater access to the literature and new better discovery tools?

Phase II: E-journals in teaching and learning

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E-journals in teaching and learning

In the RIN Phase I report we wrote:

"It has not been possible to distinguish between use by students and faculty from the publishers' logs on this occasion, but on the basis of published survey findings [by Carol Tenopir and colleagues] we believe that use by undergraduate and Masters' students accounts for around 20 percent of the total. We will be returning to this important issue in the second phase of the study."

RIN e-journals update
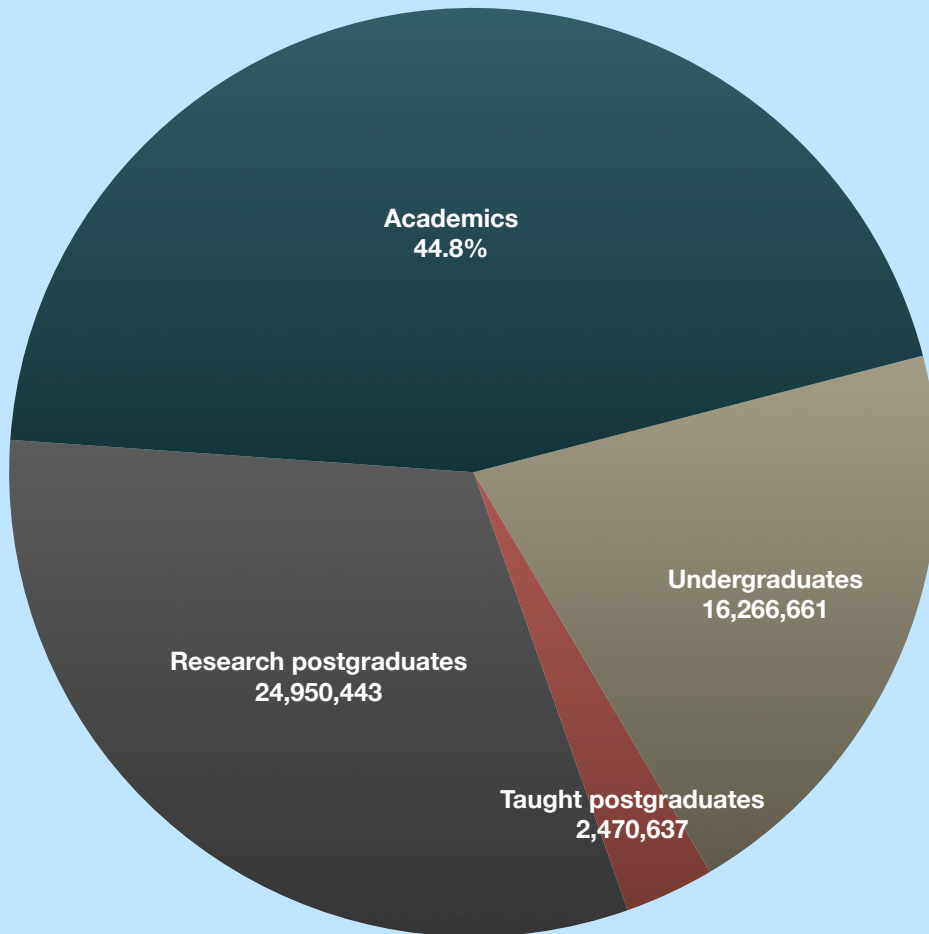## E-journals in teaching and learning

Interview findings

★ Journal use in support of teaching is extensive and is mainly about lecturers keeping abreast of their subject in order to prepare classes better and field student questions with greater authority.

★ Many lecturers introduce students to the journal literature in their third year, but this is usually very directed. The interviews found that many of these students are surprisingly well informed and knowledgeable.

★ There is a general consensus that Masters' students are capable of using that literature independently.

★ There is a paucity of e-book compared with e-journal content and it is easily discoverable by students, and e-resources offer concurrent use, unlike print.

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E-journals in teaching and learning

Estimated share of downloads by academic status 2003/04 to 2007/08
Weighted least square regression model (n=116 universities, R^2 = 0.679)

Academics
44.8%

Undergraduates
16,266,661

Research postgraduates
24,950,443

Taught postgraduates
2,470,637

	Full text downloads per annum
Research postgraduates	319.1
Taught postgraduates	10.2
Undergraduates	13.2
Academic staff	314.6

Students possibly account for 23.7 per cent of all e-journal use in UK universities.

`Researchers' (academic staff and postgrad research students) for 76.3 per cent.

Phase II: Further data modelling 2003/04 to 2007/08

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Further data modelling

Environmental indicators

★ university size measures

★ university sector

★ research-active staff, subject profile, etc.

Investment indicators

★ serials expenditure

★ total spend on information content, etc.,

Consumption indicators

★ Sconul COUNTER statistics

★ ScienceDirect downloads

★ loans, e-book accesses, etc.

Output indicators

★ article production

★ PhD awards

Outcome indicators

★ institutional citation impact (against world average)

★ research grants and contracts income

★ RAE scores, etc.

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Further data modelling

Growth in choice of journals and COUNTER downloads
(Units per registered library user, indexed 2004=100)

Is greater choice of e-journals a key driver of use?

Legend:
- 2004
- 2005
- 2006
- 2007
- 2008

All serials
- 100
- 108
- 112
- 123
- 126

E-titles only
- 100
- 114
- 128
- 158
- 162

Full text downloads
- 100
- 148
- 187
- 228
- 280