

Who needs libraries anyway? View From a Scientist (the science research community!)

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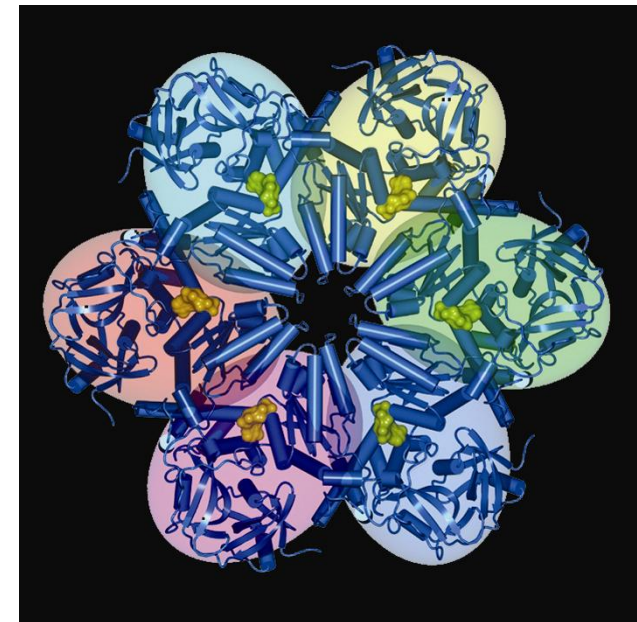
Imperial College, London

RIN/CURL Workshop

30th April, 2007

Content

- Part 1 – An introduction about myself and my work (But without Mathematics)
- Part 2 – How Scientists find information and use libraries



Background:

Pharmaceutical Technology (BTech)
Computing (MS)
Bioinformatics (PhD)

Work:

PET Modeller & Data Manager

Research:

Neuroinformatics and data mining,
image reconstruction and kinetic
modelling, multimodal integration
and imaging genetics/genomics



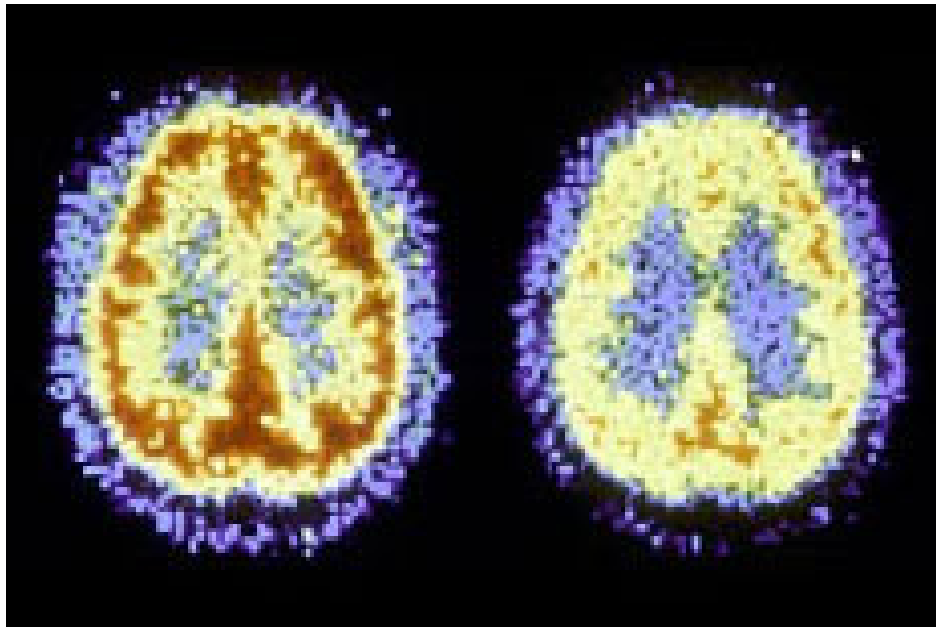
Research

Positron Emission Tomography (PET)

■ What is PET?

- ❑ A functional imaging technique that measures local concentration of exogenous tracer molecule in target tissue.
 - ❑ Provides information about biochemical and physiological processes in vivo.
 - ❑ Radioactivity concentration (tissue or plasma) can be easily converted to **drug concentration**
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Cocaine Abuse Decreases Brain Activity



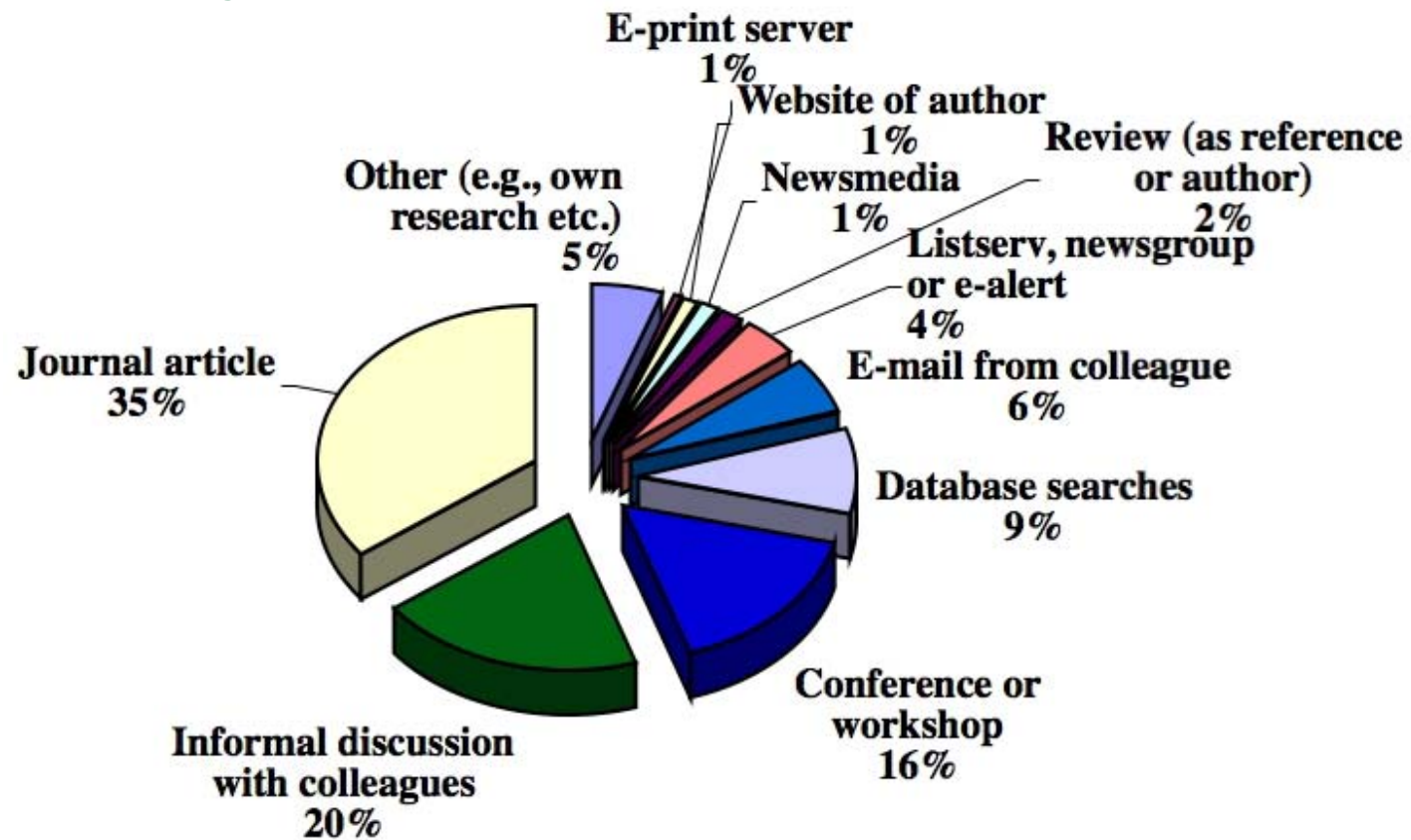
PET scans show higher brain activity levels in a normal subject (left) versus a cocaine abuser (right). Brain activity was measured by the rate of glucose utilization. Red colors indicate higher rates, while blue indicates the lowest rates.

Image Courtesy : Prometa, Switzerland

Scientists' Reading Pattern

- Scientists read more now than 20 years ago
 - Reading habits are changing due to e-revolutions (electronic publishing, journal pricing and new publishing models)
 - Remote access to electronic information is preferred and has changed the way faculty and students do work and use libraries
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What sources did you use for the last substantive piece of information you used for work? [King, 2006]



Effect of New Media on Reading Patterns [based on seven universities and n=469]

Scientists' Reading Pattern

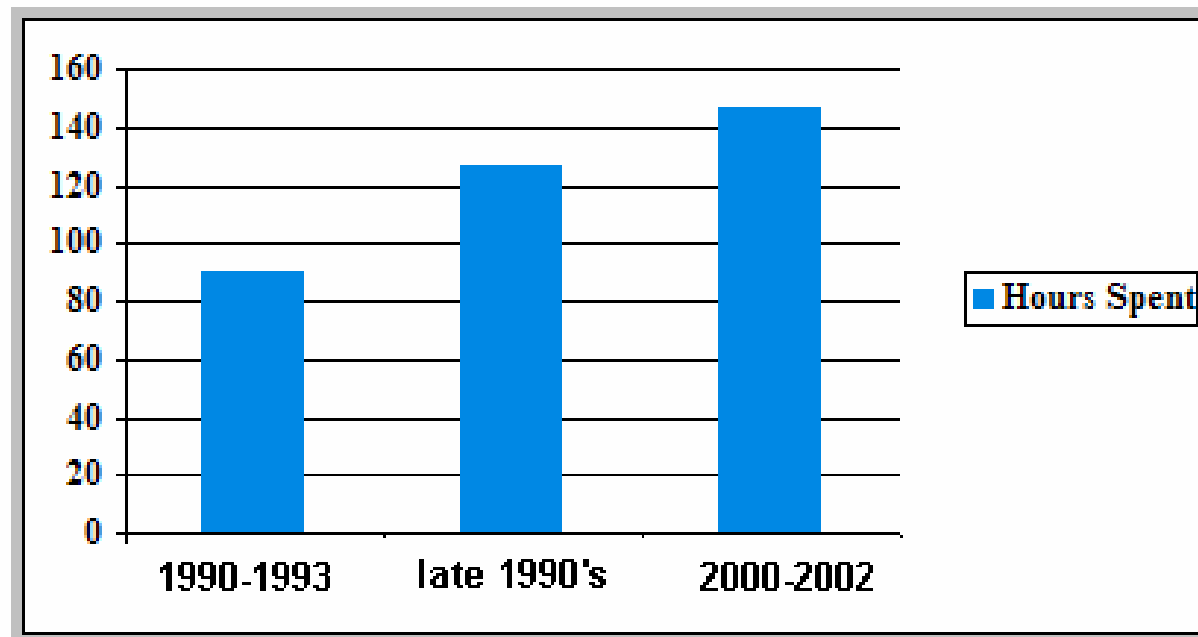


Figure 1. Average Annual Time Spent Reading Articles Per Scientist

[Reference: King and Tenopir, 2001; Kling and Callahan, 2003; Pullinger and Baldwin, 2002; Tenopir and King, 2003, 2000; Kling and McKim, 1999; Kling and McKim, 2000; Tenopir, King, and Bush, 2003, King et al., 2003]

Scientists' Reading Pattern

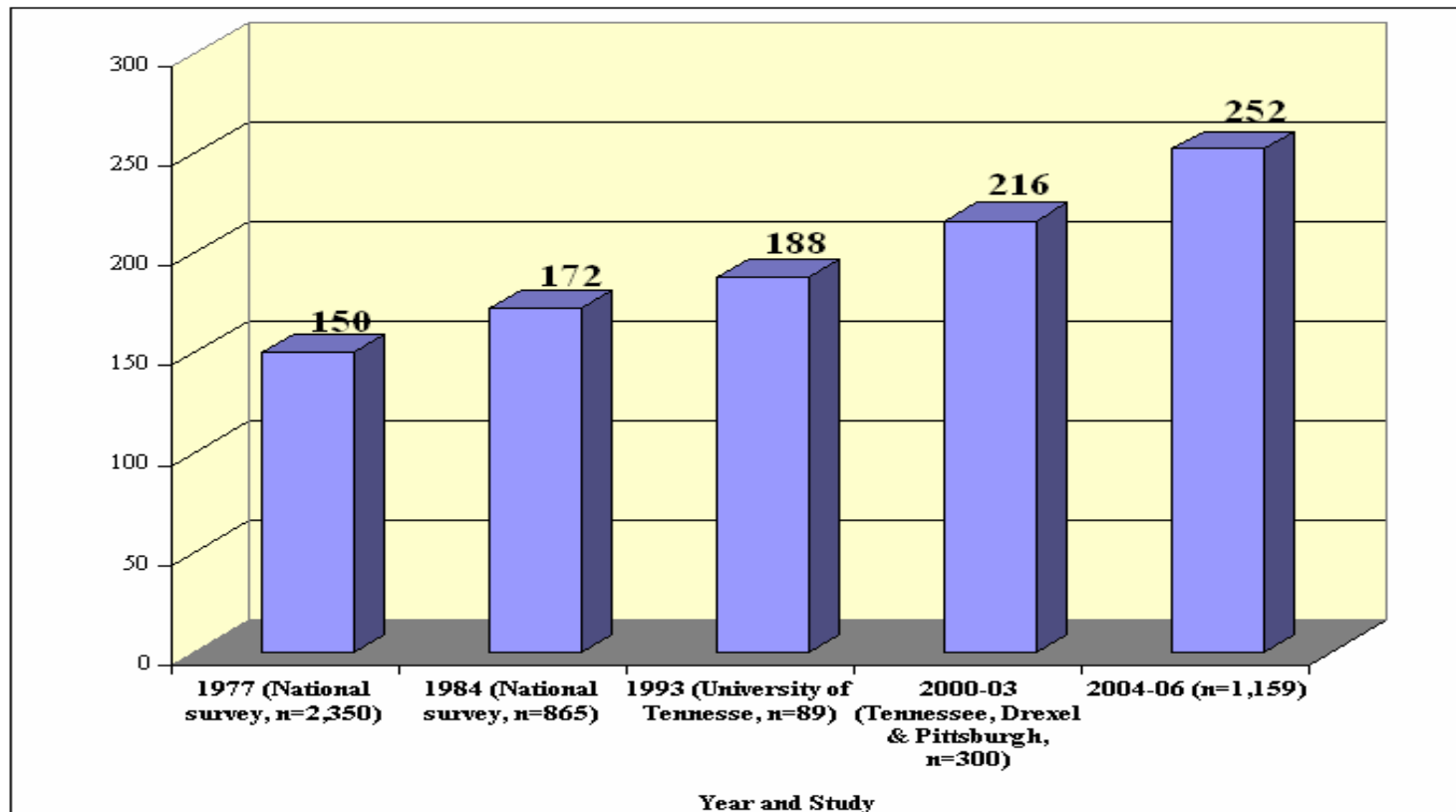
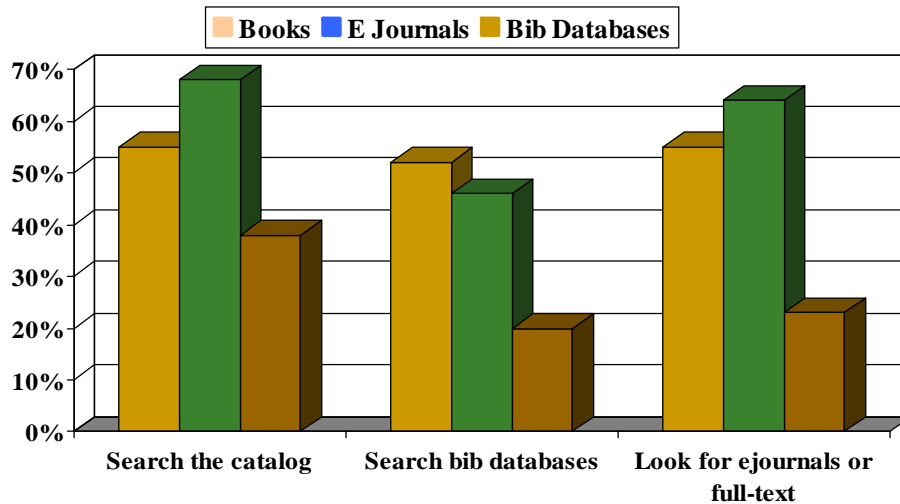
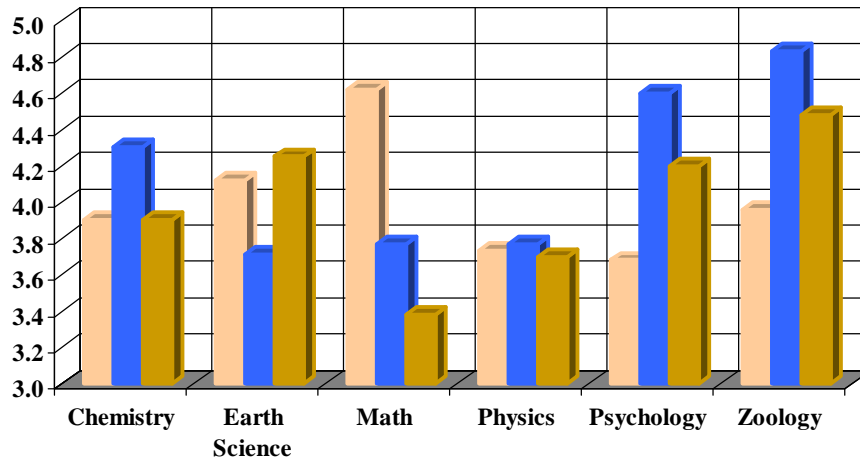


Figure 2. Average Annual Amount of Article Reading Per Scientist

[Reference: King and Tenopir, 2001; Kling and Callahan, 2003; Pullinger and Baldwin, 2002; Tenopir and King, 2003, 2000; Kling and McKim, 1999; Kling and McKim, 2000; Tenopir, King, and Bush, 2003; King et al., 2003]

Faculty Resource Type Importance



Faculty Grad Undergrad

Reference : Hiller, 2003

Scientists read more!

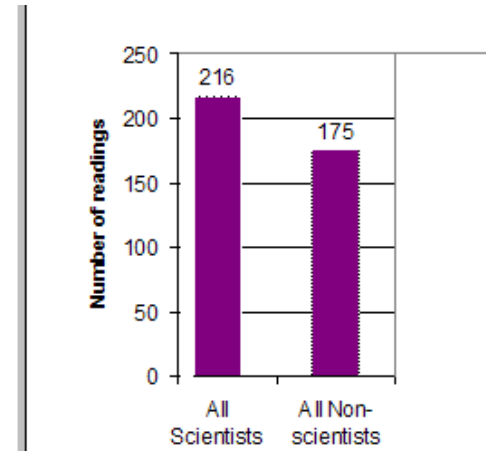
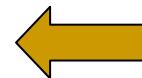


Figure: Average Amount of Reading by Scientists and Non-Scientists
Reference: King et al., 2003

Triennial Survey: What Science Faculty and Students Do When They Use the Library Remotely (% who do so at least weekly)






- Browsing Academic Journals (print or electronic journals) for latest development
- Searching in search engines in bibliographic and e-journal databases for specific research question and academic writing)
- Follow-up of citations in journals and other publications
- Recommendations from colleagues, etc.
- Other (e.g., alerts, preprint services, etc.)

Where Do Readers get Articles?

	1977	2006
Browsing	40%	37%
Searching Online	2%	25%
Citations	11%	15%
Colleagues, etc.	18%	16%
Other	6%	7%

- 75% of articles read were electronic in 2006 compared to 0.3% in 1990-93
- Personal subscriptions declined sharply (5.8 in 1977 to 2.2 per scientist now); more articles come from library subscriptions than any other source
- Readings focus more on individual articles than on journal titles (browsing down)
- Online searches are not necessarily of library databases
- Many recent studies confirm strong preference for remote access to electronic information

Sources of Articles

Personal Subscriptions	In 1977-- 68% In 2006-- 31% Down	
Library Collections	In 1977-- 14% In 2006-- 52% UP	
From Another Person	Same	
Author Websites	Small	
Preprint and other databases	Small	
Age of articles is important		

- Decrease in personal subscriptions
- More articles identified by online bibliographic searches
- Electronic collections have broadened access to articles

Format of Articles Read

Year	1977	2006
Print	83%	19%
Electronic	trace	75%
Separate copy	17%	6%

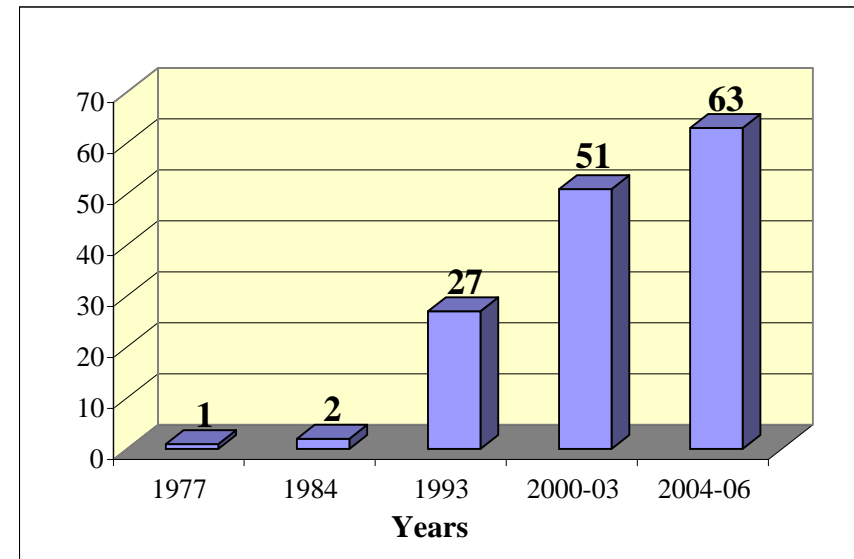


Fig 4: Avg No. of Articles Identified by Automated Searches per University Scientist

- An Older Model of Library use involved
 - Initial trip
 - Follow-up trip
 - Fine tuning trip

 - Now it's a continuous interactive and iterative process involving
 - I can find any article or even idea about anything at any time
 - In any project the information mining is continuous (during my experiment or while I'm writing I can get any article or verifying information)
 - I need to add latest information in my paper for good **impact factor** journal
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Conclusions

- Scientists like digital content (articles, data, metadata, publication history etc) direct to the desktop;
 - Technologies will continue to drive journal publishing patterns like open access
 - Funding the institutional library should be increased
 - Newly proposed library information system models need to be designed with all key stake holders opinions
 - We need simplify complexity of library and information environment so that it could be used as a gateway to the world of knowledge
 - Taking Challenge if interdisciplinary research (38% are working in interdisciplinary areas)
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