

Communication Patterns of Engineers

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Engineers are different!

4 Main Questions

- 1) How do engineers communicate in their work?
- 2) How much do engineers read scholarly journals?
- 3) Is there a pattern of the users of electronic vs. print?
- 4) How do engineers compare with other disciplines?

Data From:

- 20,000+ scientists, engineers, and social scientists
- 1977 to the present
- More than 100 university and non-university settings

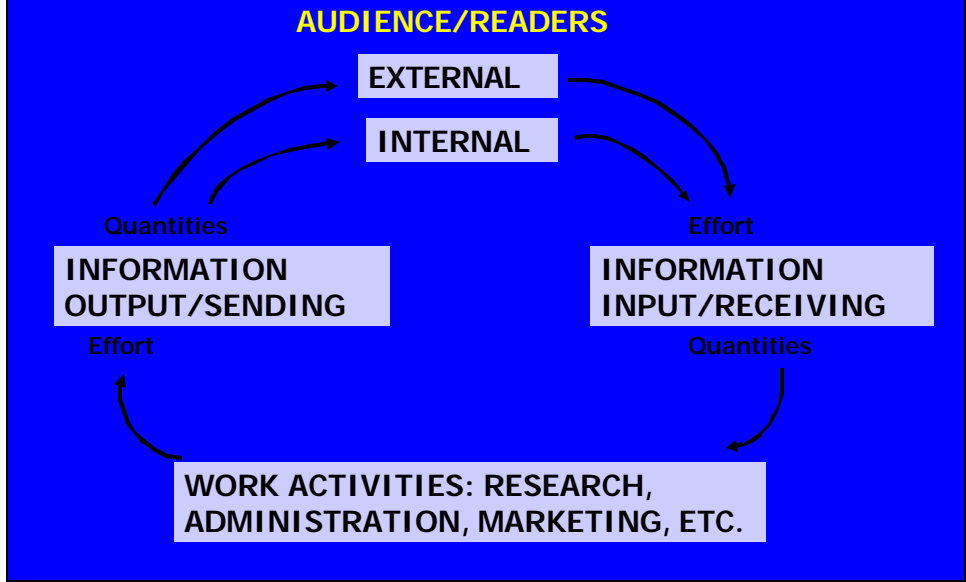
Types of Data

- Demographic
- Estimates of behavior
- Details of “last” reading

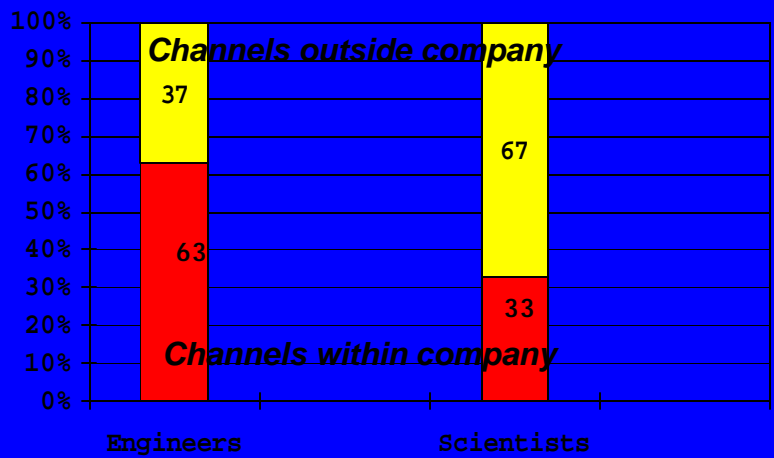
More Details in:

- Tenopir and King, *Communication Patterns of Engineers*. IEEE/Wiley InterScience, 2004
- Tenopir and King, *Towards Electronic Journals: Realities for Scientists, Librarians, and Publishers*. SLA, 2000.

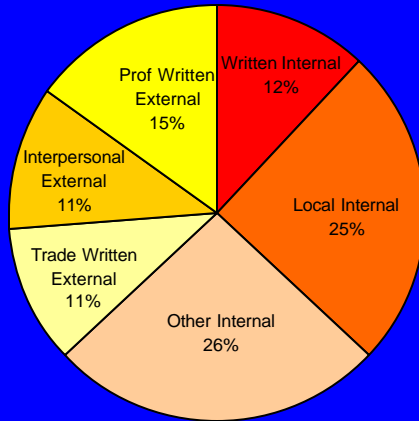
Professionals' Communication Cycle



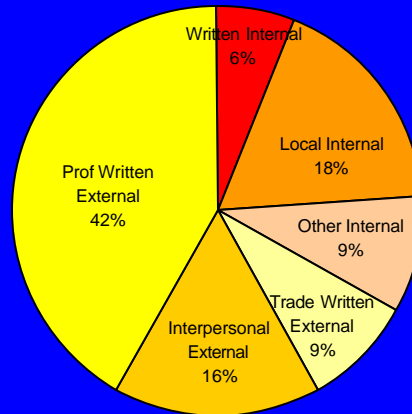
Proportions of Instances



Proportion of instances

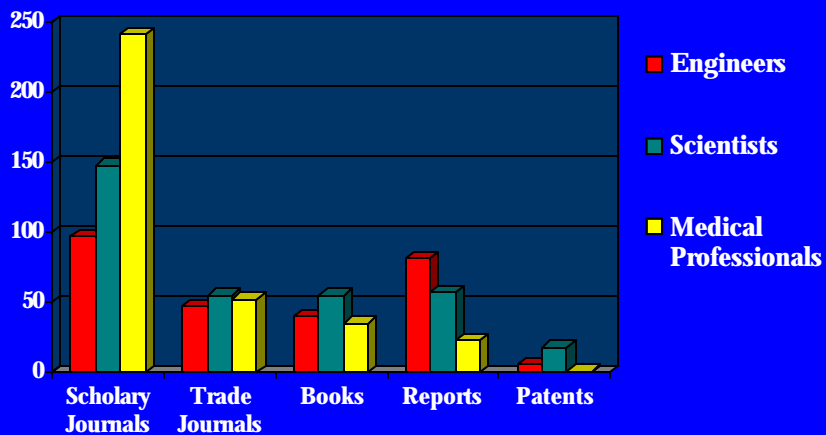


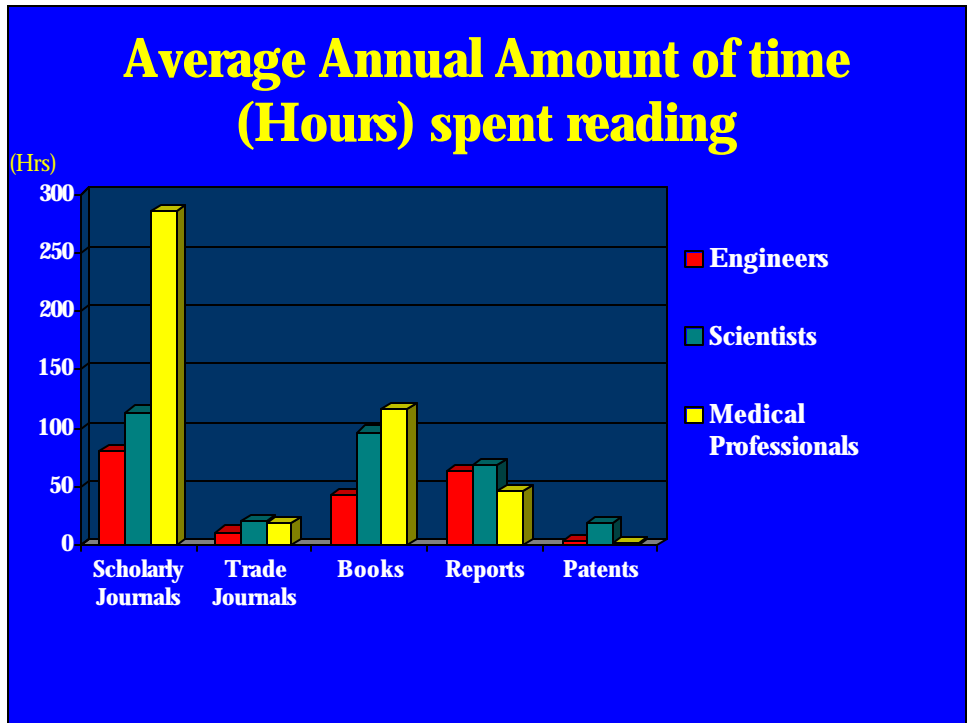
Engineers



Scientists

Average Annual Amount Reading

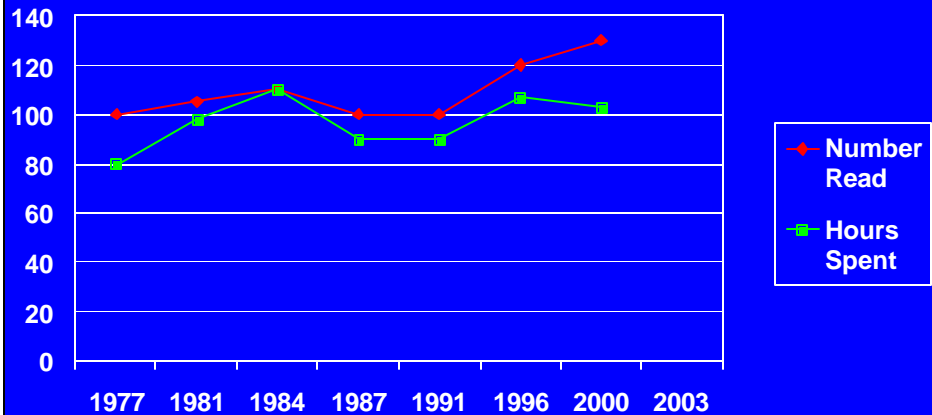




Scholarly articles

- From a print or electronic journal
- “Separates” (eprints, preprints, from colleague, ILL, web site, etc.)

Average Time Spent and Number of Articles Read Per Year Per Scientist

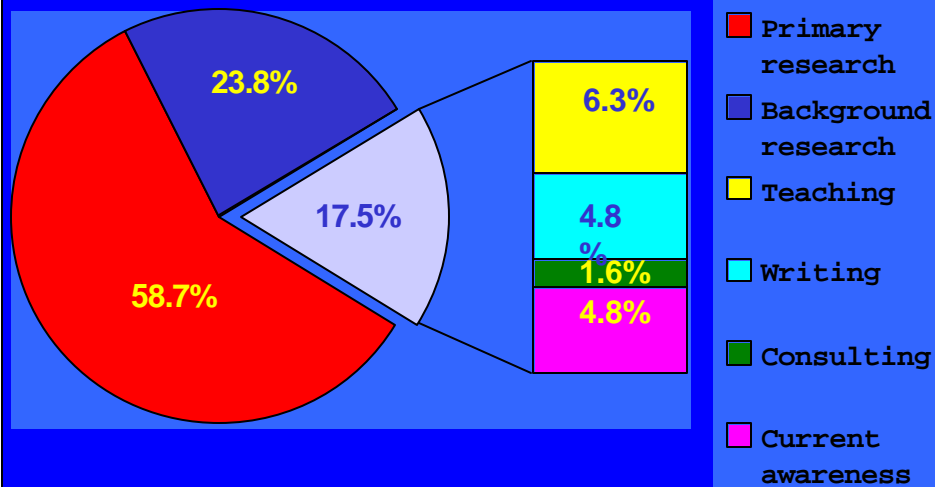


Scholarly Article Reading

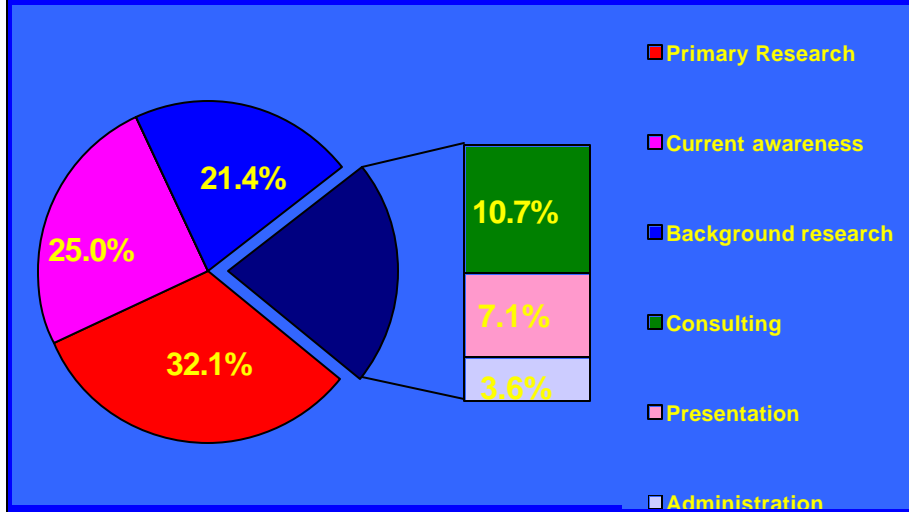
Work Field	Articles Read (Per Year)	Time Spent (Hours)	Time Per Article (Min)
Univ. Med.	~322	118	22
Chemists	~276	198	43
Life Scientists	~239	104	26
Physicists	~204	153	45
Soc Sci/Psych	~191	121	38
Engineers	~111	81	44

Updated June 2004

Principal Purpose of Reading by Engineering Faculty



Principal Purpose for Reading by ORNL Engineers

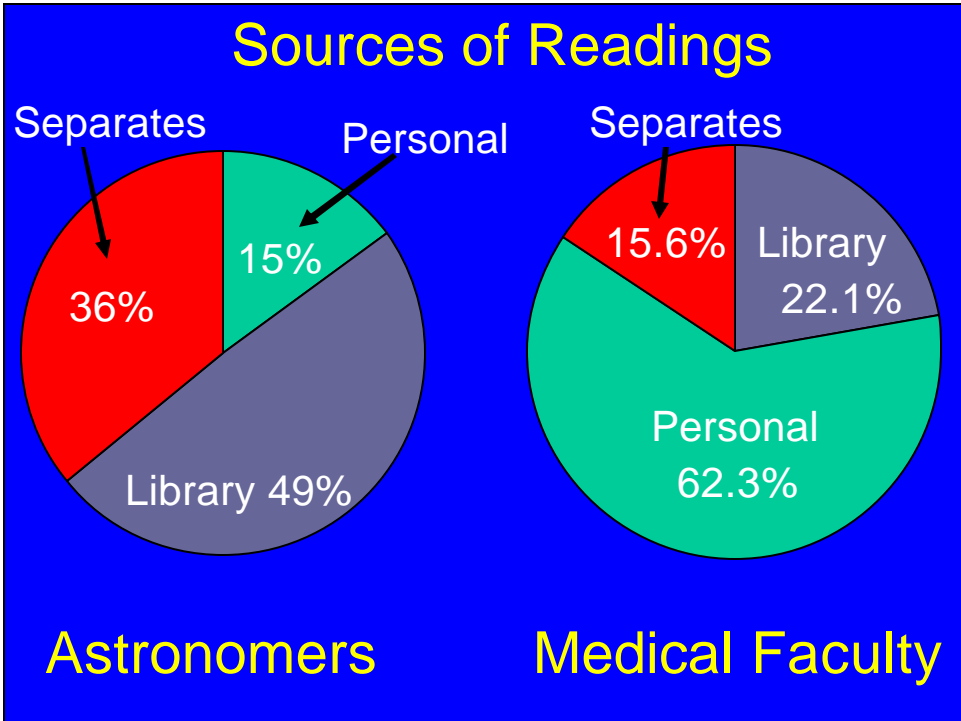
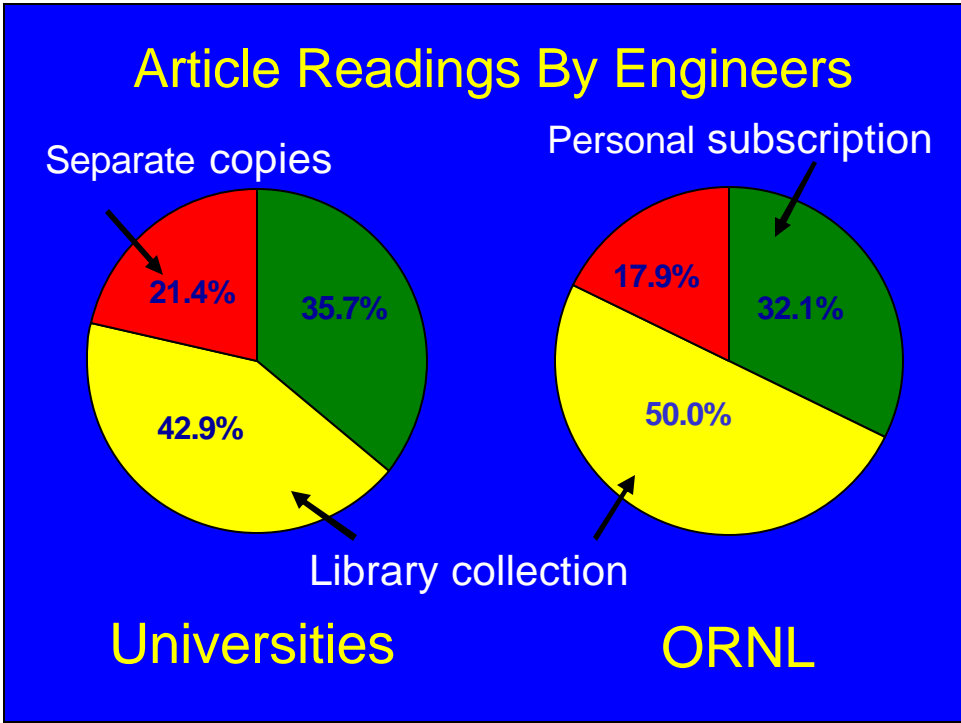


Principal Purposes of Reading

University Engineers	ORNL Engineers	Medical Faculty	Science Faculty
Primary Research	Primary Research	Primary Research	Primary Research
Background Research	Current Awareness	Current Awareness	Current Awareness
Teaching	Background Research	Teaching	Teaching & Background Research

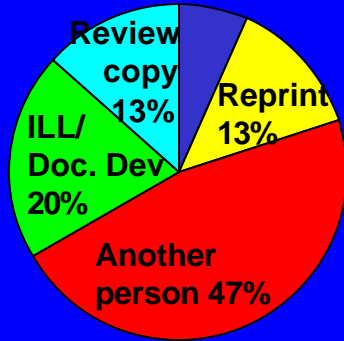
Reading Was Most Valuable for:

University Engineers	Medical Faculty	Science Faculty
Primary Research	Consulting/ Advising	Writing
All others tied	Writing	Primary Research
	Primary Research	Current Awareness

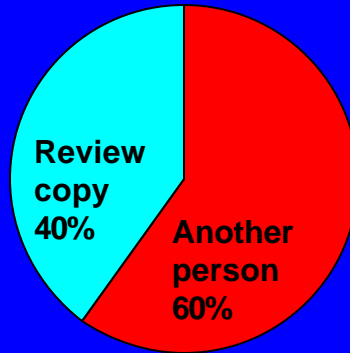


Separate copies

Preprint-electronic 7%

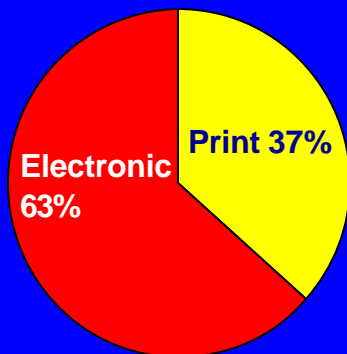


Universities

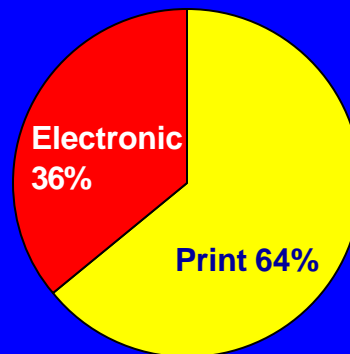


ORNL

Library Collection Readings By Engineers

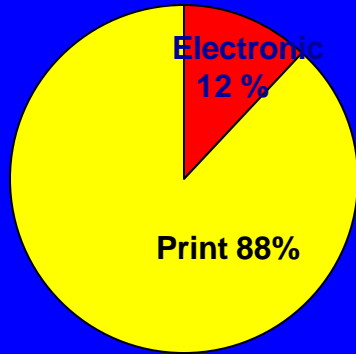


Universities

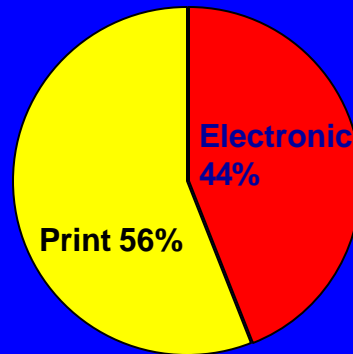


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Personal Subscriptions

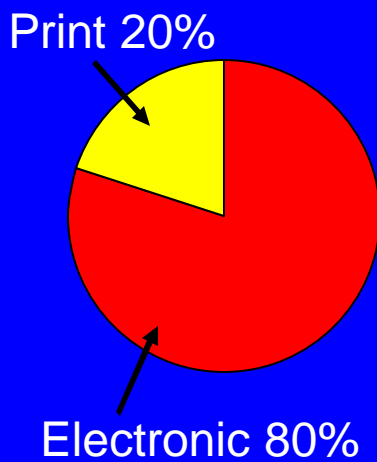


Universities



ORNL

Print or Electronic?

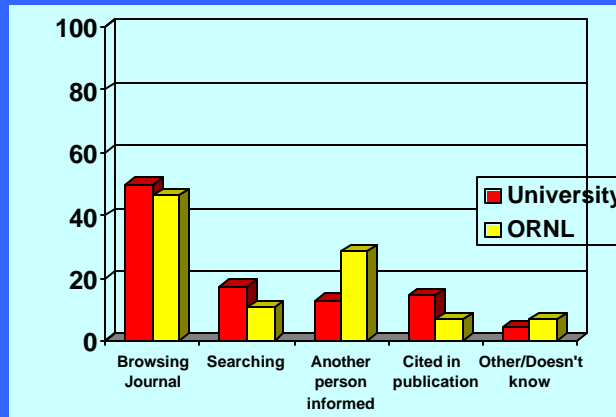


Astronomers



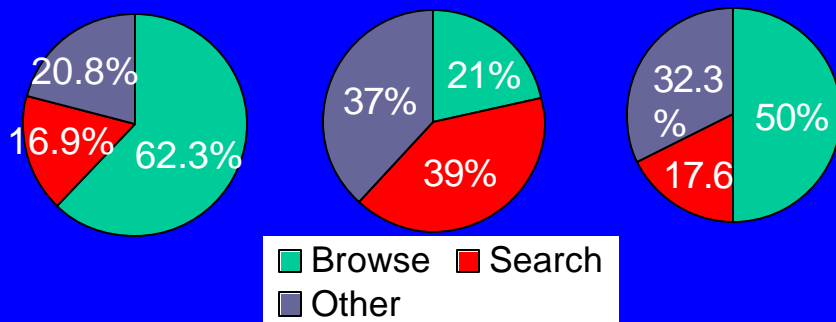
Medical Faculty

Means of Learning About Articles



Proportion of Readings of Articles That Are Identified by Various Means by University and ORNL Engineers: U.S. 2000-2003

Means of Learning About Articles Read

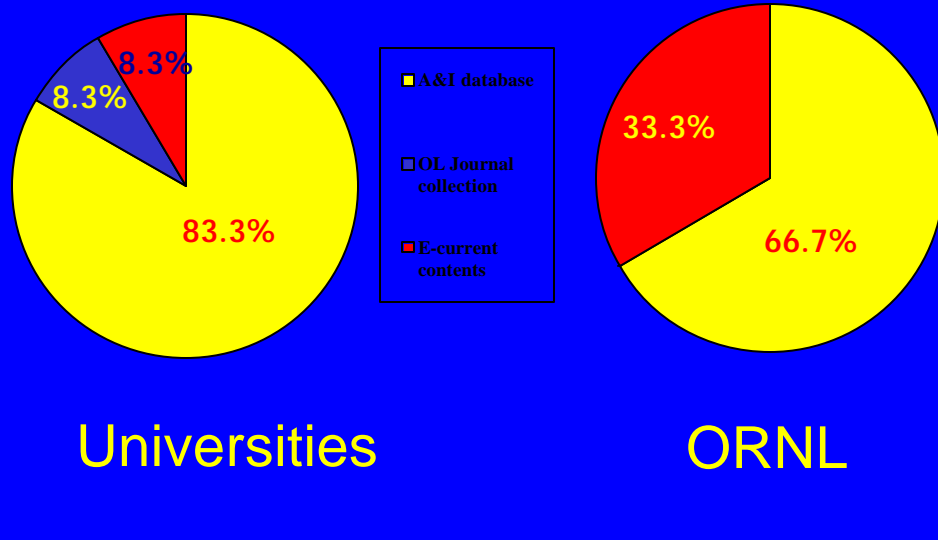


Medical Faculty

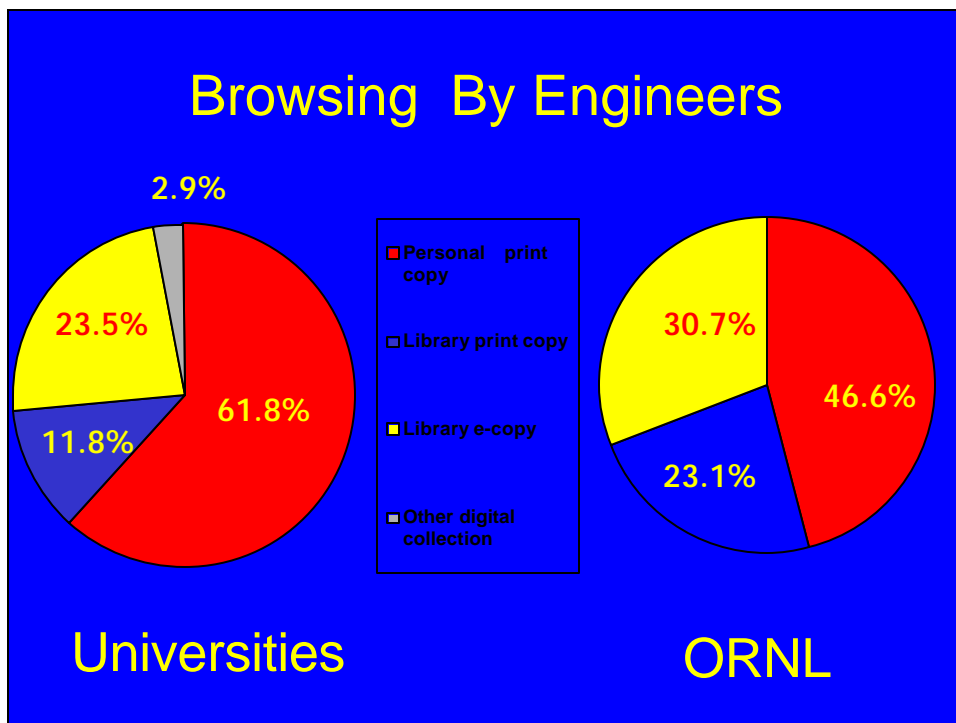
Astronomers

Engineering Faculty

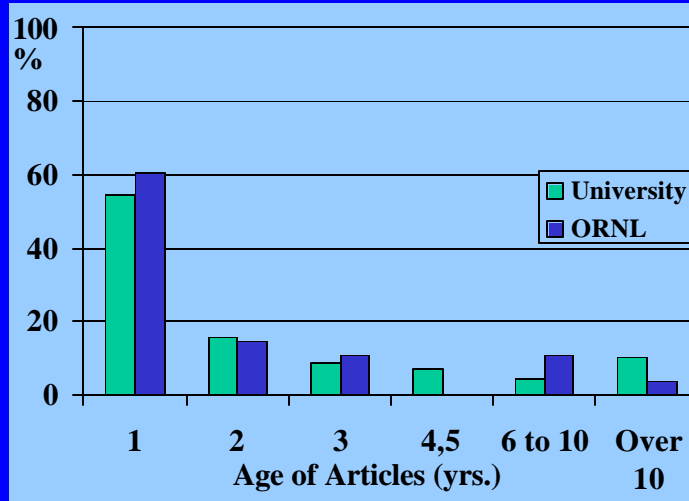
Searching by Engineers



Browsing By Engineers

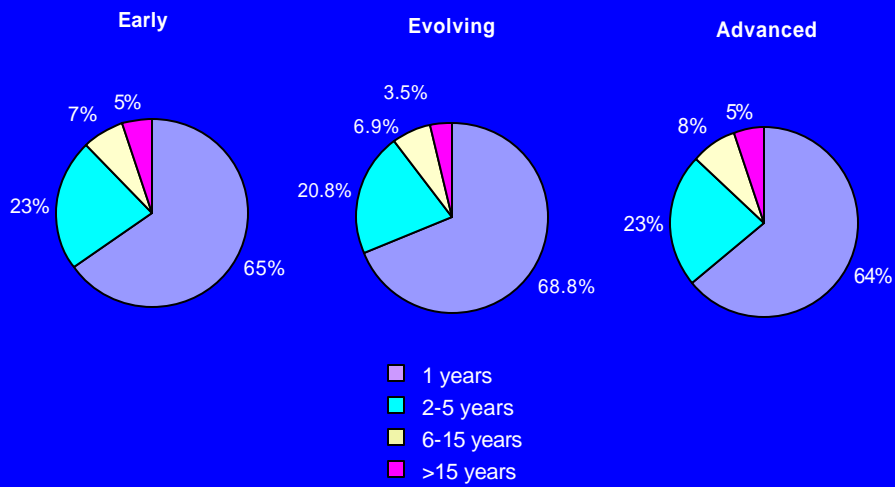


Age of Articles Reading



by University and ORNL Engineers by the Age of Articles Read: 2000-2003

Age of Articles Read Over Time



Summary of Communication Patterns of Engineers

- Engineers rely more on internal information sources
- Scientists read more scholarly articles
- Engineers spend more time on each reading
- Engineers use many ways to locate information—browse more and rely on colleagues more
- Engineers read articles for research; other things for other purposes