Use of Astronomy's Info System : The Highly Productive User

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Branding for Authors

- Adding to, solidifying author's reputation
  - Peer review (independent of publisher?)
  - Perceived quality of journal
  - Perceived quality of publisher
- Author wants to be identified with most prestigious journal

Branding for users

- Want to ensure reliability of information
- For journals -- depend on
  - peer review
  - journal reputation
  - reputation of author
  - Reputation of delivery system (?)

- e-prints depend only on author reputation

Branding is Complex

- Combination of many factors
- Depends on sophistication of user
- Broad range of users
  - Electronic information reaches broad audience
  - Old definitions no longer apply
- Users confused about source
  - Library vs. Journal vs. Aggregator
  - All linked

Ease of Access is Critical

- Ease of access is most important factor
  - Working academics will preferentially use what is available
- Usage data may be distorted by factors other than quality and branding
- "If it is not on the Web, it does not exist at all." -- *Sarah Stevens Rayburn, STScI*
- Yet, users, like cats, will go to great lengths to get what they want...

Make things simple

- Our job, as information providers is to make information simple to find and access...

What Does a User Want an Information System To Do?

- Consider the tasks ...

- Look at the system components

Tasks and Components of Electronic Information System

Tasks	Components
<u>Tasks</u>	<u>Components</u>
Find	- Searchable Abstract Database
Access	- Linked Accessible Collection
Read	- Journal Article
Use	- Tabular and Auxiliary Data
Publish	- Journal
Store	- Archival Quality Collection

Astronomy – A Good Testbed

- Small literature – 11 core journals
- Self referential – 90% references to core
- NASA and NSF funding for development
- Internationally connected discipline
- Most journals owned by societies
- AAS publishes 40% of core literature
  - 25,000 pages per year
- Strong, active library community

Astronomy's Interlinked System

- Searchable abstract database (ADS)
- Linked electronic journals (since 1995)
- Scanned full text backfiles
- Links to astronomical databases
- Machine readable data tables
- Nearly complete coverage (90%)
- Design input from end users and librarians

Astrophysics Data System (ADS)

- Searchable abstract database – Linked →
  - One click away from full text
    - Journals or backfiles
  - Covers core journals, conference proceedings
- Forward and backward citations
- Interoperates with publisher
  - Check references
- Supported by NASA -- freely accessible

Awareness and Use of ADS by Astronomers
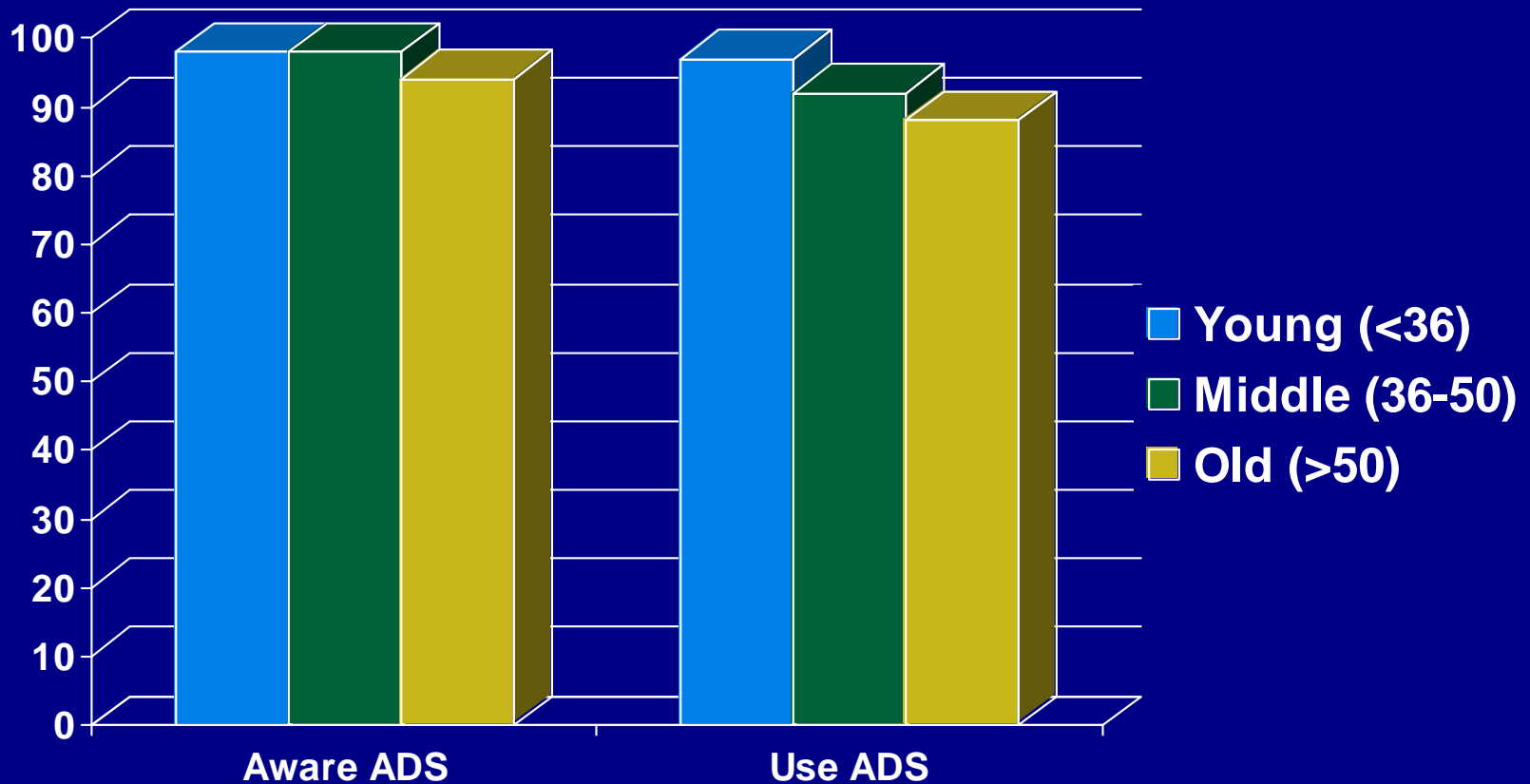
Awareness and Use of e-print ArXiV by Astronomers

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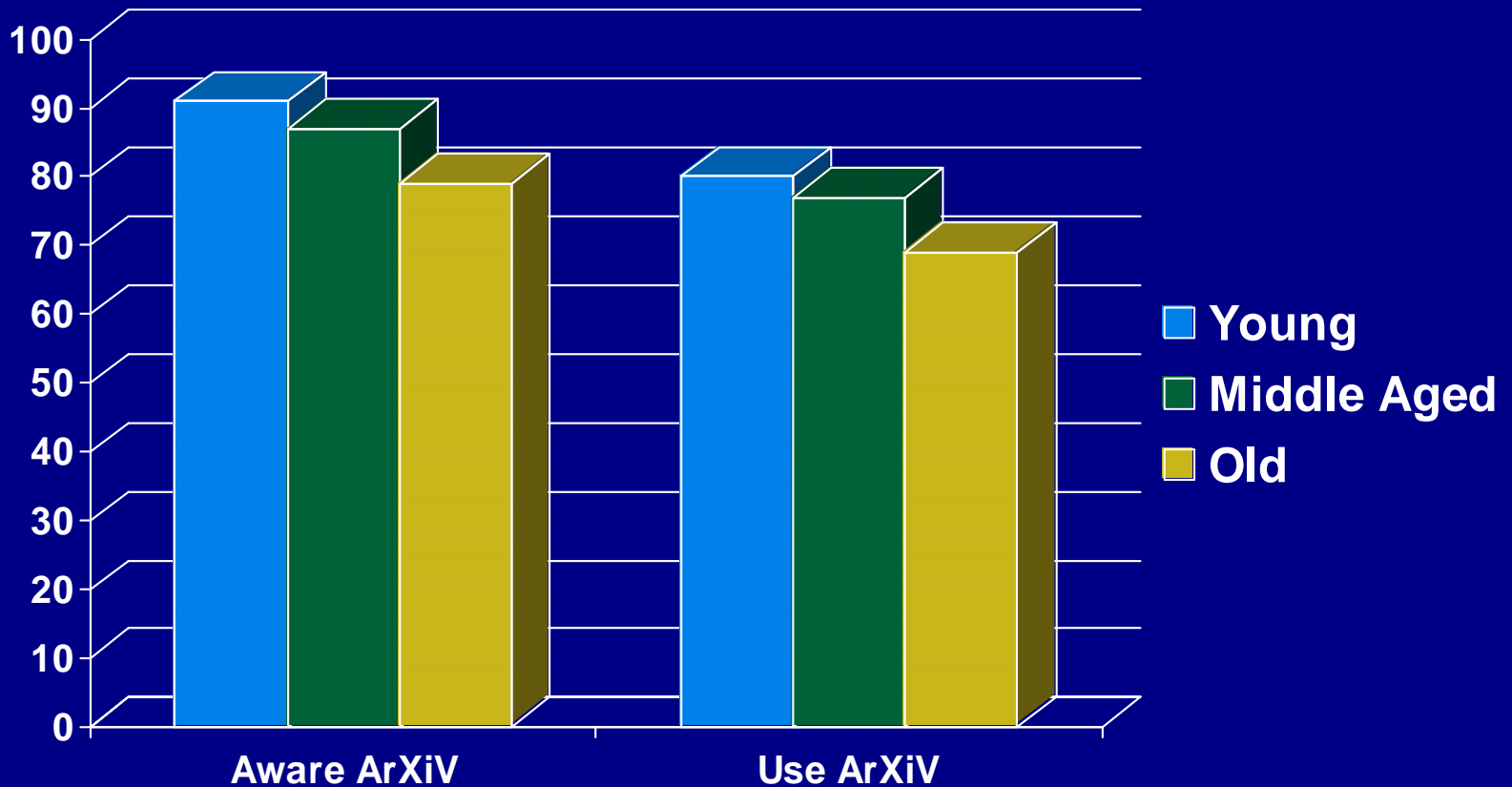
Levels of Productivity (Astronomers)

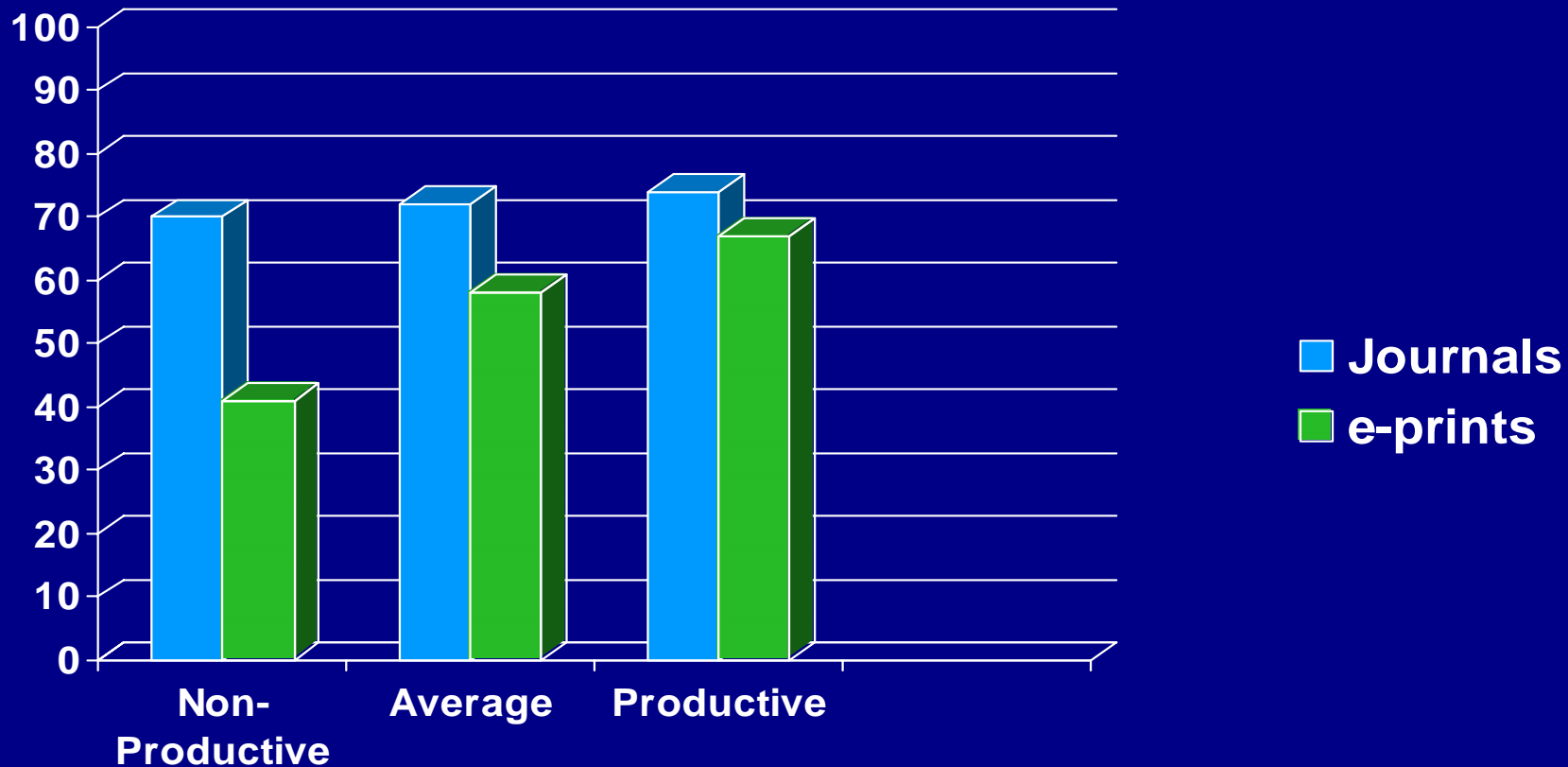| Label	Definition
Non-Productive	< 1 refereed articles per year
Average	1-2 refereed articles per year
Productive	>2 refereed articles per year 46% of respondents 78% of refereed articles

Perceived value of Resource
Percent Rating Resource as Critical or Very Useful for Keeping Up with Recent Developments
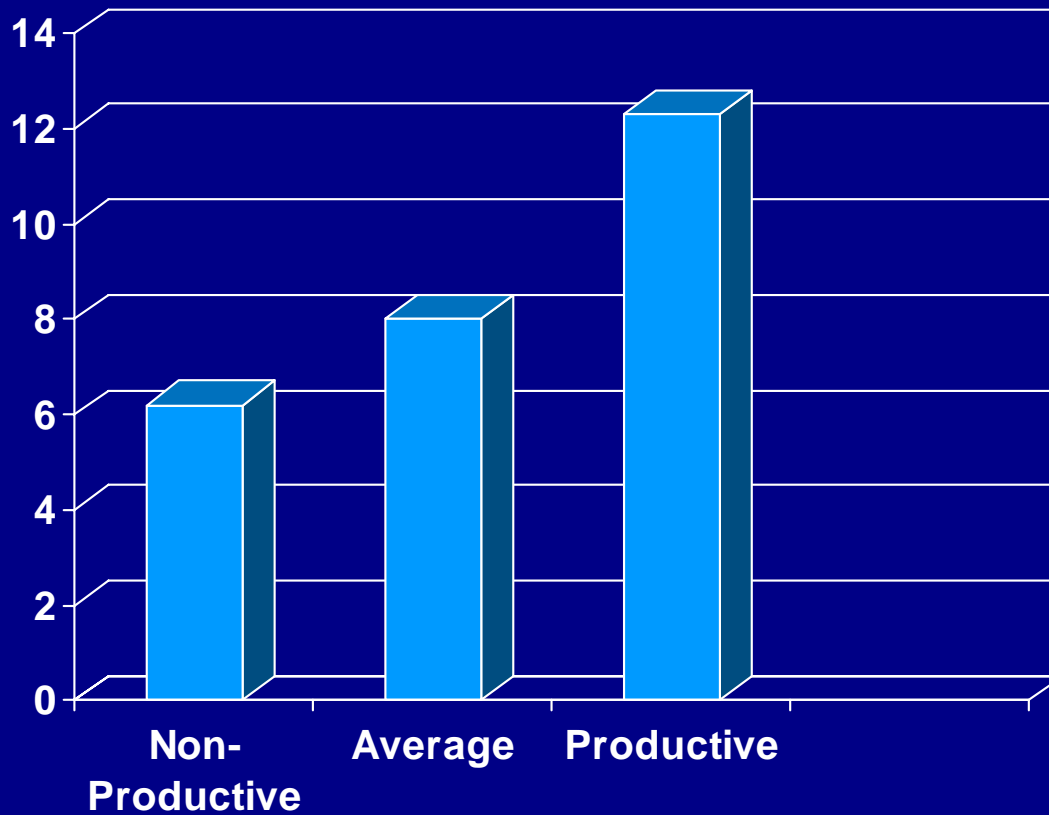
Perceived value of Resource
Percent Rating Resource as Critical or Very Useful for Obtaining Definitive Information
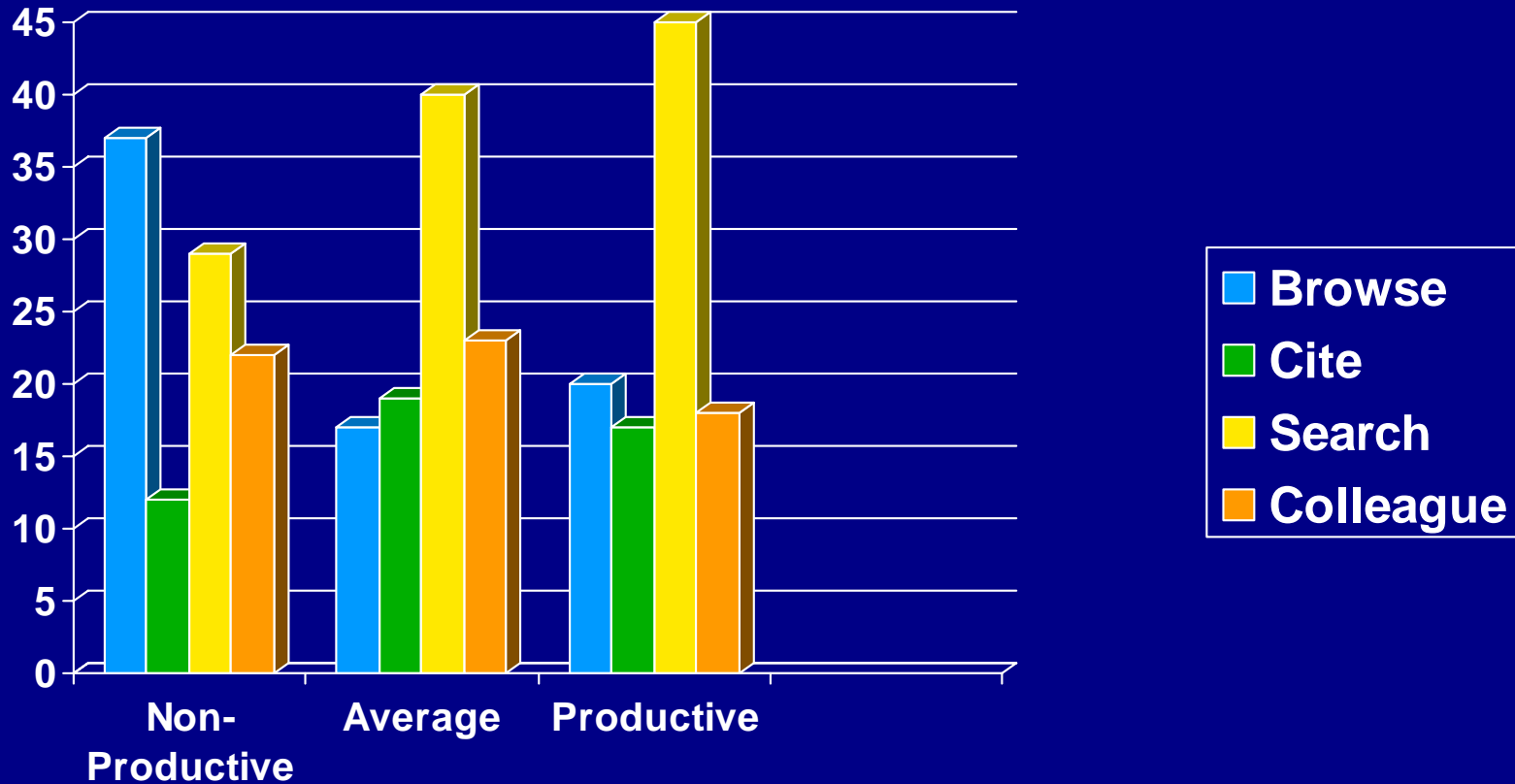

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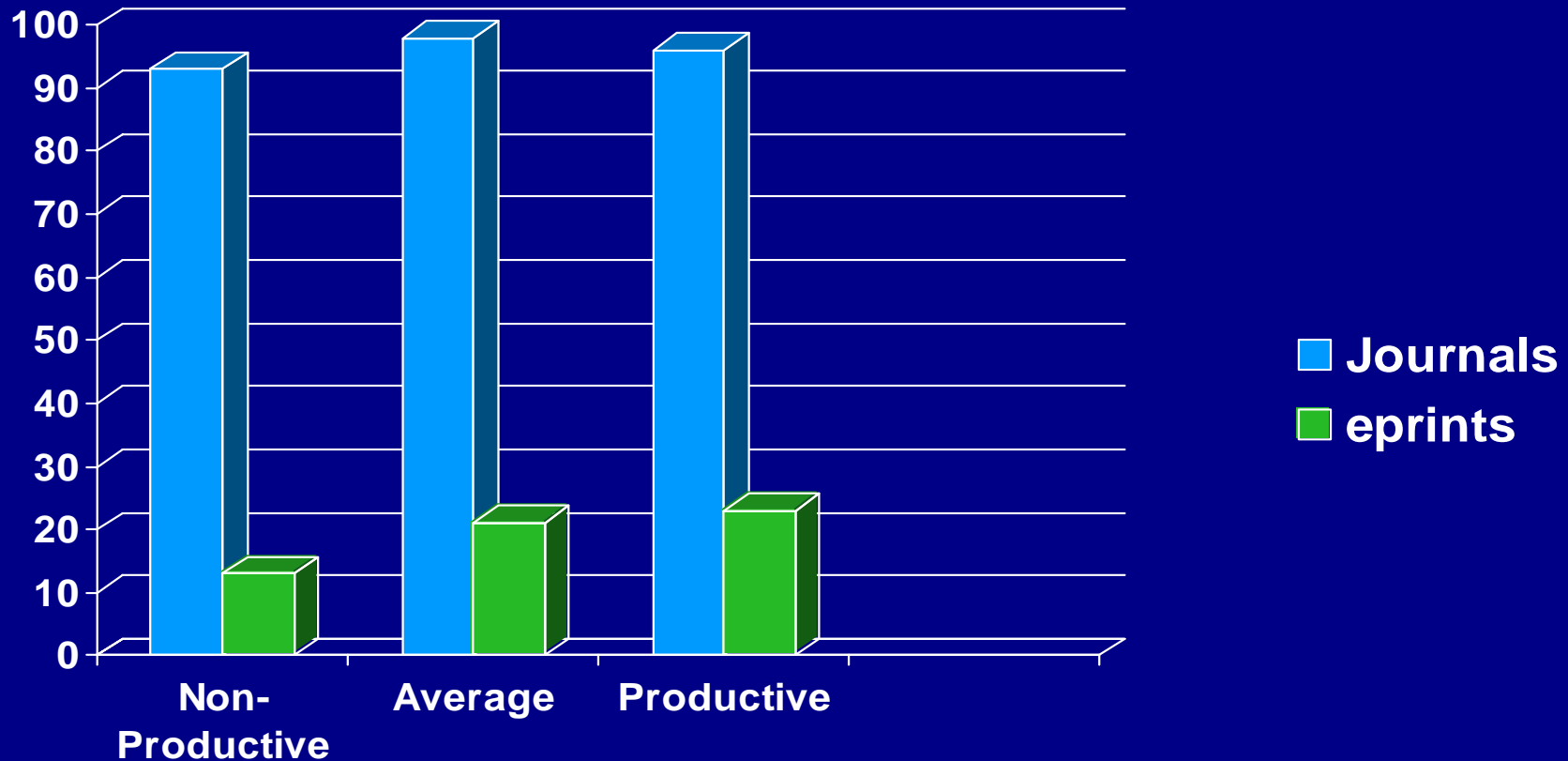
Journals Preferred

- Journals (as a brand) are overwhelming choice
  - Peer reviewed
  - High reputation
  - Familiar
- e-prints used for current information
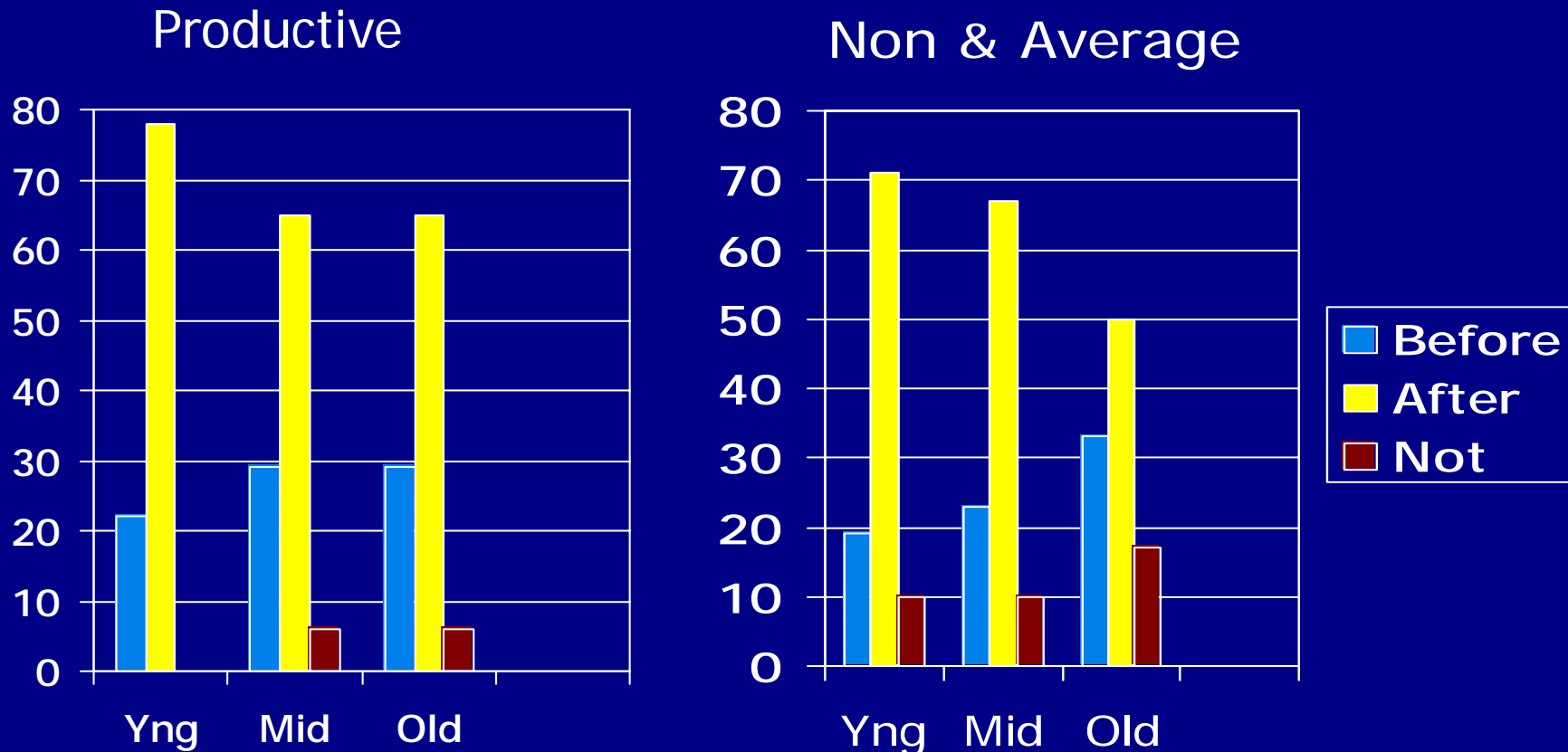
Articles Read per Month vs. Productivity

How Articles Are Located vs. Productivity

To Find Articles

- **Productive authors**
  - Prefer to search - mostly on-line
  - Less likely to get reference for colleague

- **Non-productive authors**
  - More likely to find article by browsing
  - Less likely to follow citation

When are e-prints submitted?
Before or after acceptance by Journal

Branding for readers

- **Journals preferred as info source**
  - For current information
  - Overwhelmingly for definitive information
- **e-prints used for rapid communication**
  - Before journals become available
- **Most productive users value info more**
  - They read twice as much

Branding for Authors

- **Authors depend on journal peer review**
  - Peer review is important confirmation
- **Submit to e-print server after acceptance by journal**
- **Young and productive authors more likely to wait for journal acceptance**
- **Non-productive authors more likely to publish only an e-print**

Final Thought

- Productive authors
  - Produce 4/5 of articles
  - Do 2/3 of reading
  - Find ½ their articles by searching

- Shouldn't we tailor our products and services to the needs of productive users?