research and innovation

gathering information

Alan Dix

STRUCTURE + DIVERGENCE = INNOVATION

it is wise to learn from
your own mistakes

it is shrewd to learn from
other people's mistakes

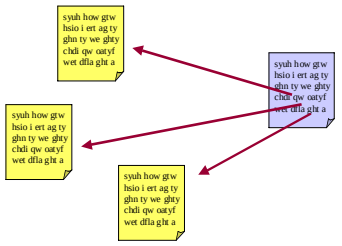
other people's work

- what they write
  books, articles, manuals, notes, doodles
- what they say
  interviews, discussion, news footage
- what they do
  observation
- what they make
  software, organisations, desks, notice boards

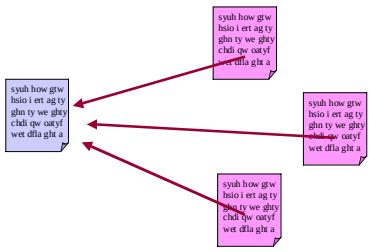
finding references getting started

- keyword searches
  - web, bibliographic databases, ACM/IEEE
- what's available
  - libarary, your bookshelf, other people
- key sources
  - main conferences, specialist portals, home pages of 'experts'

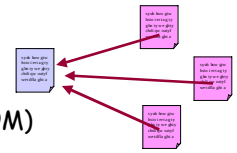
bibliographies going backward in time



citations going forward



citation indices

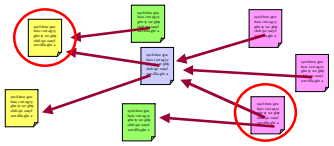


- library (book/CDROM)
- ACM digital library
- citeseer

  citeseer.nj.nec.com

broadening out

- place of publication
  - conference, journal
- authors' home pages
- back-and-forward citations



filtering references

be selective!

- keywords (unreliable)
- abstracts
- skim read
- citation count
- well-known expert?

criteria
- relevance
- authority

recording references

what
- details (title etc.)
- keywords (your own)
- mini abstract
- key points

... don't just cut and paste from the web!

where
- card index
- word processor file
- standard database
- bibliographic db
- web pages

talking to people – who

- client
- user
- supervisor/tutor
- other staff
- friends and contacts

talking to people – what

you don't know what you're doing!

professional — does it

academic — knows about it

Artefacts ← things people make

Embody

Experience

- what is good about it?
  why is it good?
- what is bad about it?
  why is it bad?
- why do it this way?

Artefacts

Embody

Theories

e.g., mouse ⇒ hand/eye control better than typing

deep understanding helps

- combine ideas
  avoid the crocaphants
- change context
  e.g., interfaces for the blind
- improve and correct

Artefacts

Embody

Assumptions

solutions depend on context
e.g., speed vs. space for algorithms