Improving On line Communication of Statistics - ABS Strategies

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What I am going to cover

- Statistical and meta data communication
  - On line communication
  - Why
  - What
  - How
- ABS strategies for improving data communication
  - cognitive science theory
  - Examples, prototypes and proof of concep

What I do not have the time to cover

- How to add value to data sets
  - linking data sets over time (CDE), across sources (small area, or thematic data sets), across time
  - improving granularity (mesh blocks, geocoding)
- Improving the information content
  - International and national comparisons; Google maps
- Getting more out of data sets
  - RADL, GIS etc.

How has the ABS website evolved over time?

- Way Back Machine
- How did we do it?
  - communication versus dissemination
    - outputs and outcomes
  - cognitive science research

Improving data communication

- What?
  - sharing of information between producers and users of statistics in a way that enables understanding - 2 way
- Why?
  - increase users and uses
    - reason for our existence
  - increase informed use of statistics
    - understand information content, context, caveats and limitations to determine 'fitness for purpose'
  - outputs vs outcomes
- How? - how does the mind comprehend information?

How does the mind comprehend information?

- Cognitive research showed 3 important cognitive processes:
  - perception - attaching meaning
    - use well recognised symbols and org. cues
  - attention - focusing on sensory information
    - avoid cognitive overload and filtering
    - 7 plus minus 2 rule
  - learning - reinforcing or coding into memory
    - web site methods not a distraction for learning stats
    - consistency and hence web standards

Web surfing behaviours

- Users, not readers
  - Scan, not read
  - They "satisfice"
- They don't figure out, they muddle through
- Tourists, harvestors and miners
  - broadcasting vs narrow casting
- As a result
  - web sites should be self evident
  - failing this, self explanatory
  - "Don't make me think" - Steve Krug and clicks

How to maximise comprehension?

Presentational issues

- appropriate cognitive load
- appropriate organisational cues - examples
- simple to complex presentation
- use alerting techniques

Content issues

- reduce propositional complexity
- write for the web (ie on line reading)
- contextual linking of metadata with data

Maximising comprehension (cont'd)

Tell interesting statistical stories - tourists +

- stories behind the numbers
- need good tools to do this eg GapMinder

Discover users' own stories - harvestors and miners

- extract, "slice and dice", graph and analyse
- publish using social networks supported by NSOs
  - Blogs, Wikis, Swivel, Many Eyes – OECD

Cognitive laboratory and testing

Client focus versus product/service focus

Examples and prototypes

- Organisational cues
  - ANA, Regional Population Growth, Regional Wage and Salary Earner Statistics, CPI
- Alerting techniques
  - Statbox
  - RSS
- Layering of Information
- Density and web writing
  - example 1, example 2

Examples and prototypes (cont'd)

- Client focus - Small business operators/S/T Governments
- Contextual linking of data - 2006 Census
- Making statistical stories interesting
  - Human Development Trends
- Detecting patterns in statistical data
  - Thematic maps
  - Population pyramid
  - Dashboard (ABS), Dashboard (Wine), Dashboard (SA)
  - MDG, Gap Minder World

Putting the ideas together

- Community Statistics Portal
  - Discover statistics, official stories, and own stories; exploring data; downloading stats
  - Proof of Concept

To summarise

- Use of cognitive science to develop on line statistics
  - Presentation
  - Content
  - Telling official stories
  - Enabling others to discover/unlock stories
    - Support their publication

Useful references

- ABS vision and prototype - www.abs.gov.au/about/epublication
- Rome Seminar on Dynamic Graphics for Presenting Statistical Indicators
- Data visualisation
  - Social Explorer - http://www.socialexplorer.com/pub/home/home.aspx
  - GapMinder - www.gapminder.org
  - Many Eyes - http://services.alphaworks.ibm.com/manyeyes/app
  - Swivel - http://www.swivel.com/

Useful references (cont'd)

- XCelsius - http://www.xcelsius.com/Examples/Overview.html
- Dash Boards - http://www.microstrategy8.com/dynamicdashboards.asp
- **The Australian**
  - Data visualisation
  - Blogs


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Questions