To what extent can research influence LIS curricula? How much LIS curriculum actually makes sense without research? A Humboldtian perspective

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Overview

- About a rhetorical question
- About teaching
- About DL research
- About Linked Open Data and Web Science
- On Terminology
- On Research and Teaching
“4. **The Unity of Research and Teaching.** Humboldt’s ideal of the coexistence of research and teaching has become a model for universities all over the world. Central to this model is the idea of research-oriented teaching and the transfer of knowledge from the spirit of research. Students and teachers are joined together in an endeavour to critically examine traditional bodies of knowledge and to actively advance learning. For this reason, the Humboldt-Universität promotes social and communicative competences among all of its members and supports their initiatives wherever it can.”
“It is furthermore a peculiarity of the universities that they treat higher learning always in terms of not yet completely solved problems, remaining at all times in a research mode ...

Schools, in contrast, treat only closed and settled bodies of knowledge. The relationship between teacher and learner is therefore completely different in higher learning from what it is in schools. At the higher level, the teacher is not there for the sake of the student, both have their justification in the service of scholarship.”
What are we teaching?

- Canonised Knowledge?
  - Things that can be gathered from textbooks?
  - Information with definite context?
  - To be reproduced in exams?
- Questions!
  - The ability of coming up with them, asking them
  - Asking questions as a natural state, constituting scholarship
  - The impossibility of definite 'answers' and 'solutions'
- Digital Libraries?
  - It's the terminology, stupid!
  - Back to ECDL 2003
The Digital Library metaphor has been useful and necessary during a transitional period – but is it still:

- effective/significant?
- appropriate?

Or is it starting to be counter-productive or even dangerous?

Similar questions could be asked referring to DL research.

**Names are NOT innocent: things change, and names should change accordingly (even though with a specific delay ...)**

'Meaning' is slightly more complex than just 'referring to' and includes such subtleties as 'connotations'.

The movie analogy: from 'Film Theatres' to 'Cinemas'
Panel 'geometry' and composition

Digital

Europe/EC

US/NSF

Libraries

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Since 2003 ... Linked Data

### Linked Data essentials

1. **Use URIs**  
   Standard **Identifiers**

2. **Use HTTP URIs**  
   Standard **Pointers**

3. **Serve useful information using SPARQL, RDF standards**

4. **Mention URIs of related objects**  
   **Link** to Context

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http://www.w3.org/2008/Talks/0617-lod-tbl/#(4)
A few Bubbles: 5/2007

- Over 500 million RDF triples
- Around 120,000 RDF links between data sources

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Over 13.1 billion RDF triples
Over 142 million RDF links between data sources

Many Bubbles: 7/2009

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'Catalog Entries' become part of this cloud, as with the Europeana Data Model (EDM)
... as well as 'publication' aggregations combining 'documents' and 'things'

- Where do resource aggregations 'start'? Where do they 'end'?
- And what constitutes document boundaries??
- And which node was connected to which one at a given time???
Machines can reason on triple sets!

http://ex.org/bib/Book

http://ex.org/bib/White>Noise
rdf:type

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Some reasoning preconditions ...
… and an automated inference!

There is quite some potential for generating scholarly heuristics here!
... based on 'Documents' as Aggregations of RDF-Triples (1)

Condition: Sardinian
Provenance: Giardine et al

Assertion:
- NG_000007.3:g.70628G>A
- has frequency
- 0.25%
'Documents' as Aggregations of RDF-Triples (2)

<assertion>
  <subject>NG_000007.3:g.70628G>A</subject>
  <predicate>has variant frequency</predicate>
  <object>0.25%</object>
</assertion>

<condition>Sardinian</condition>

<provenance>
  <dateofcreation>March 24, 2011</dateofcreation>
  <lastedit>March 24, 2011</lastedit>
  <evidenceType>empirical</evidenceType>
  <authorID>Giardine et. al.</authorID>
  <curatorID>unresolved</curatorID>
  <registrantID>Mons et. al.</registrantID>
  <PMID>6695908</PMID>
  <PMID>1428944</PMID>
  <PMID>1610915</PMID>
  <DOI>http://dx.doi.org/10.1038/ng.785</DOI>
  <linkout>http://globin.bx.psu.edu/cgi-bin/hbvar/query_vars3?mode=output&display_format=page&amp;i=239</linkout>
  <linkout>http://phencode.bx.psu.edu/cgi-bin/phencode/phencode?build=hgl8&amp;id=HbVar.239</linkout>
</provenance>
Nano-Publications and Context

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From Catalogs to Graphs
Changing Terms for a Changing Profession
Ceci n'est pas une bibliothèque
Ceci n'est pas une bibliothèque
Catalogue

The card catalog in the nave of Sterling Memorial Library at Yale University. Picture by Henry Trotter, 2005.
“A list, register, or complete enumeration” (OED)
κατάλογος: “enrolment, register, catalogue” (LSJ)
καταλέγειν: “enumerate, recount” (LSJ)

When referring to library catalogues, three traits seem to be constitutive:

- Reference to “holdings”, to a “collection”,
- which in term needs to be finite
- and the basic entities contained in this collection must be enumerable, delimited entities (hence the importance of the document notion in this context)

These traits seem almost too trivial to mention – but cannot be taken for granted anymore even in the near future
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http://bristol.dilib.info/Chopin/images/img_catalogue3.JPG
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... and its constituent information objects

'biblia', 'libri': finite, 'monolithic' entities
Catalogue Based Library
Functional Axioms (1)

Metadata Catalogue

- Author Title
- Author Title
- Author Title
- Author Title

- ... ShelfNo
- ... URL
- ... URL
- ... IsShownAt

Document Objects

- Adobe PDF
- XML + XSLT
- Europeana Object

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Catalogue Based Library Functional Axioms (2)

- **Mediating access** to information objects via **catalogues**
- **Mediating links** as pointers from metadata to objects
- Objects are part of a library **collection**
  - An object to be used within a library typically is part of this library's collection
- Internal processing logic: focus on
  - objects as information **containers**,
  - not so much on the **content** of these containers
- **Ingestion, storage, description** and **retrieval** of information objects as functional macro-primitives
- The catalogue was the very heart of this paradigm.
- Cataloguing was a core activity in terms of professional identity.
From 'Catalogues' to 'Graphs':
old Words – new Words (1)

Graph these case-sensitive comma-separated phrases: Bibliotheksbestand, digitale Bibliothek
between 1920 and 2008 from the corpus German with smoothing of 3.

Reverse Proportional!

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From 'Catalogues' to 'Graphs':
old Words – new Words (2)

Reverse Proportional!
From 'Catalogues' to 'Graphs': old Words – new Words (3)
From 'Catalogues' to 'Graphs': old Words – new Words (4)

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From 'Catalogues' to 'Graphs': old Words – new Words (5)

Graph these case-sensitive comma-separated phrases: Katalog, Katalogisierung, Metadaten
between 1940 and 2008 from the corpus German with smoothing of 2.

Search lots of books.
"What's in a name? That which we call a rose
By any other name would smell as sweet."
(Shakespeare, Romeo and Juliet (II, ii, 1-2))

- Why then do we stick to emptied metaphors?
- ... because they **constitute identity** (a very bad reason!)
- ... because they guarantee **institutional persistency** (a fallacy!)
- ... because we are afraid of substantial changes and believe in **things changing only once we use new names** (dangerously childish!)
- ... or simply because we **do not have new names** yet (let us then start looking for them!)
Change Terminology!

- Libraries will become part of the Linked Open Data web – or else risk becoming insignificant.
- For operating this change they imperatively need to change terminology:

  - Catalogue
  - Holdings
  - 'Record'
  - (Digital) Library
  - Document
  - Information
  - Search
  - Aggregation
  - Discovery
  - Graph
  - Knowledge
  - Link
  - Context
  - Navigation

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Back to Teaching & Research

- Changing terminology is about **signification** and **interpretation**, about **asking questions** and **understanding** ...
- ... which in turn are inseparably constituents of both teaching and research!
- This brings us back to

And in the context of my work teaching and research mostly converge in