Data Literacy as a Human Right: Roles and Responsibilities of Librarians as Datamediaries

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Big Data in the Network Society

Data Capitalism  Data Deluge
Dataclysm  Data Explosion
Data Double  Data Fluency
Data Fluency  Data Literacy
Data Fluency  Data Protection
Data Privacy  Learning Analytics
Data Refineries  Data Security
Data Warehouses  The Quantified Self
Data Refineries  Smart Cities
User Data on Proprietary Platforms Today (Taylor 2016, 8)
Facebook, Google (local), YouTube, Wikipedia, Yahoo, Amazon (local), Twitter

- Privileged communications
- Private chat
- Geo location data
- Secrets
- YouTube video
- Likes
- Articles
- Metadata
- Searches
- Wall posts
- Emails
- Blog posts
- Tweets

Public
Private
Ephemeral
Lasting
Study Design

Research questions
- What does it mean to be data literate in the contemporary digital world?
- Who are the critical stakeholders for the data literacy movement?
- How should libraries respond to the data literacy challenge?

Theoretical frameworks
- Radical Change Theory (Dresang 1997, 2005, 2006; Dresang and McClelland 1999; Dresang and Koh 2009)
- Theory of Stakeholder Identification and Saliency (Mitchell, Agle and Wood 1997)
- Intellectual Capital:  
  - Intellectus Model (Bueno, Salmador and Rodriguez 2004)  
  - Overextension Strategy (Itami 1987)

PITTSCI Review of related literature + Analysis of secondary data
What Does it Mean to be Data Literate in the Contemporary Digital World?

Social Justice, Community Engagement and Information Institutions

SOCIAL SCIENCE DATA
- Analysis, Interpretation, Evaluation
  - Data Literacy
  - Statistical Literacy
  - Information Literacy
Kinds of Data – Diversity of Characteristics

Form
- Quantitative
- Qualitative

Structure
- Structured
- Semi-structured
- Unstructured

Source
- Captured
- Derived
- Exhaust (by-products)
- Transient

Producer
- Primary
- Secondary
- Tertiary

Type
- Indexical
- Attribute
- Metadata

Access
- Closed
- Shared
- Open

(Kitchin 2014, 4-9; ODI, 2015)
"...helps you understand the language of data" (ODI n.d.)
Theories of Literacy – Evolution of Meanings

A skillset
- Reading, writing, oral
- Numeracy (component or supplement)
- Other enabling skills (multiple literacies)

An applied practice
- Universally applicable (functional literacy)
- Socially and culturally situated (new literacy)

A learning process
- Active and broadly-based
- Individuals making sense of their experiences (constructivist learning)
- Groups transforming their communities (critical reflection)

Subject matter
- Texts produced and used by literate individuals

Technical → Critical, Product → Process, Individual → Social

(UNESCO 2005)
LIS Conceptions of Data Literacy

- Variously presented as an integral part, component/subset, offshoot, or complement to information literacy
- Emerged from social science dataset community, added qualitative elements to statistical/quantitative literacy
- Expanded definitions for e-science/research (SDL, DIL), emphasized metadata and curation for producer role
- Current work in school and public libraries promoting a lifewide view of youth data literacy and personal DM
- Other projects exploring data literacy for open civic/government data in public and academic libraries
- A few cross-sector activities (e.g., academic-school/public/business), but mostly sector-/context-specific
- Some awareness of need to support learner transitions from school through higher ed. to work and citizenship
Alternative Conceptions of Data Literacy

UG Research Skills (Secondary Data)

PG Research Methods (Primary Data)

2013

2014

2015

2016

2017

2017
Sample Definitions of Data Literacy

Journalism

“the ability to consume for knowledge, produce coherently and think critically about data. Data literacy includes statistical literacy but also understanding how to work with large data sets, how they were produced, how to connect various data sets and how to interpret them” (Gray, Bounegru and Chambers, 2012, 148)

Business

“the ability to read, write and communicate data in context, including an understanding of data sources and constructs, analytical methods and techniques applied, and the ability to describe the use case, the application and resulting value” (Gartner 2018)
Who are the Critical Stakeholders for the Data Literacy Movement?
How Should Libraries Respond to the Data Literacy Challenge?

“information literacy and data literacy form part of a continuum, a gradual process of scientific-investigative education that begins in school, is perfected and becomes specialized in higher education and forms part of individuals’ skill set throughout their lifetime” (Prado and Marzal 2013, 126)
Libraries as Community Datamediators

From an intellectual capital perspective, libraries have the educational know-how (human capital), organizational and technological infrastructure (structural capital), professional networks and community engagement (relational capital) to play a leadership role in data literacy.

By partnering across traditional sectoral boundaries, and building on successful innovations in information literacy, they can engage in collaborative learning-by-doing and reach beyond their current capability for social benefit.

Transferable practices include LibGuides, online tutorials, MOOCs, cross-sector instructional partnerships, and navigating information literacy via multilife perspectives + UNESCO primer + UNESCO declaration...
References


References


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Questions & Suggestions

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